ORDER NO. AD9301027C8

Service Manual

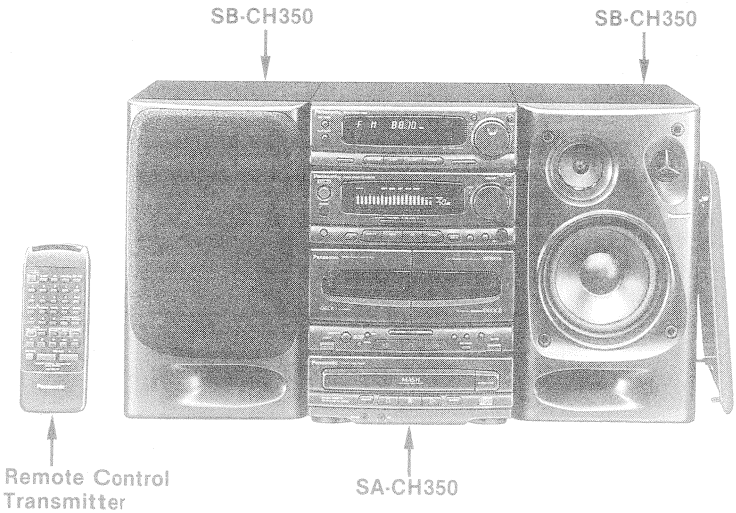
COMPACT disc DIGITAL AUDIO

DIGITAL MASH* multi-stage noise shaping

CD Stereo System

SA-CH350

DOLBY SYSTEM*



Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Continental Europe.	(K)
(EG)	Germany and Italy.	
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	

System: SC-CH350

※ • Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
• MASH is a trademark of NTT.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

TAPE DECK: RS-T330R MECHANISM SERIES (AR300)
TRAVERSE DECK: NEW MECHANISM SERIES (RAE0111Z)

SPECIFICATIONS (DIN 45 500)

■ Amplifier section

1 kHz continuous power output both channels driven
2×30 W (THD 1 %, 6 Ω)
Total harmonic distortion half power at 1 kHz 0.07 % (6 Ω)
Frequency response
(For (E) area.)
PHONO 30 Hz – 15 kHz
RIAA standard curve ±1 dB
Input sensitivity and impedance
(For (E) area.)
PHONO 3 mV/47 kΩ
(For (EG, GC, GN) areas.)
DAT 250 mV/22 kΩ
Graphic equalizer 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 12.5 kHz

■ FM tuner section

Frequency range 87.50 – 108.00 MHz (50 kHz step)
Sensitivity 14.7 dBf (1.5 µV, IHF'58)
S/N 26 dB 1.3 µV (40 kHz mod., 75 Ω)
Total harmonic distortion
MONO 0.2 %
STEREO 0.3 %
S/N
MONO 70 dB (75 dB, IHF)
Alternate channel selectivity ±400 kHz 70 dB
Image rejection at 98 MHz 80 dB
Stereo separation
1 kHz 35 dB
Antenna terminals 75 Ω (unbalanced)

■ MW/LW tuner section

Frequency range
(For (E, EG) areas.)
MW 522 – 1611 kHz (9 kHz step)
MW 530 – 1620 kHz (10 kHz step)
LW 144 – 288 kHz (9 kHz step)
(For (GC, GN) areas.)
MW 531 – 1602 kHz (9 kHz step)
MW 530 – 1600 kHz (10 kHz step)
LW 153 – 279 kHz (9 kHz step)
Sensitivity (S/N 20 dB)
MW (at 999 kHz, 1000 kHz) 500 µV/m
LW (at 254 kHz) 50 µV/m

System	Unit	
	Audio center	Speakers
SC-CH350	SA-CH350	*SB-CH350

*(E), (EG) area ... Made in PAES

Panasonic

ORDER NO. AD9301027C8

Service Manual

COMPACT disc DIGITAL AUDIO

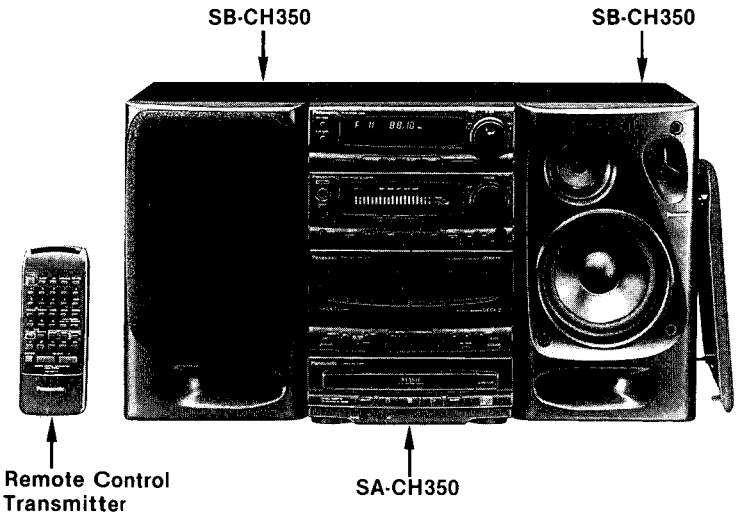
DIGITAL

MASH* multi-stage noise shaping

CD Stereo System

SA-CH350

DOLBY SYSTEM*



Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Continental Europe.	(K)
(EG)	Germany and Italy.	
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	

System: SC-CH350

※ • Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
• MASH is a trademark of NTT.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

TAPE DECK: RS-T330R MECHANISM SERIES (AR300)
TRAVERSE DECK: NEW MECHANISM SERIES (RAE0111Z)

SPECIFICATIONS (DIN 45 500)

■ Amplifier section

1 kHz continuous power output both channels driven
2 × 30 W (THD 1 %, 6 Ω)
Total harmonic distortion half power at 1 kHz 0.07 % (6 Ω)
Frequency response
(For (E) area.)
PHONO 30 Hz – 15 kHz
RIAA standard curve ±1 dB
Input sensitivity and impedance
(For (E) area.)
PHONO 3 mV/47 kΩ
(For (EG, GC, GN) areas.)
DAT 250 mV/22 kΩ
Graphic equalizer 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 12.5 kHz

■ FM tuner section

Frequency range 87.50 – 108.00 MHz (50 kHz step)
Sensitivity 14.7 dBf (1.5 µV, IHF'58)
S/N 26 dB 1.3 µV (40 kHz mod., 75 Ω)
Total harmonic distortion
MONO 0.2 %
STEREO 0.3 %
S/N
MONO 70 dB (75 dB, IHF)
Alternate channel selectivity ±400 kHz 70 dB
Image rejection at 98 MHz 80 dB
Stereo separation
1 kHz 35 dB
Antenna terminals 75 Ω (unbalanced)

■ MW/LW tuner section

Frequency range
(For (E, EG) areas.)
MW 522 – 1611 kHz (9 kHz step)
MW 530 – 1620 kHz (10 kHz step)
LW 144 – 288 kHz (9 kHz step)
(For (GC, GN) areas.)
MW 531 – 1602 kHz (9 kHz step)
MW 530 – 1600 kHz (10 kHz step)
LW 153 – 279 kHz (9 kHz step)
Sensitivity (S/N 20 dB)
MW (at 999 kHz, 1000 kHz) 500 µV/m
LW (at 254 kHz) 50 µV/m

System	Unit	
	Audio center	Speakers
SC-CH350	SA-CH350	*SB-CH350

*(E), (EG) area ... Made in PAES

Panasonic

■ Cassette deck section

Track system	4 track, 2 channel
Heads	
DECK 1 (playback)	Permalloy head
DECK 2 (record/playback)	Permalloy head
(erasure)	Double gap ferrite head
Motor	DC servo motor
Recording system	AC bias, 100 kHz
Erase system	AC erase
Tape speed	4.8 cm/sec
Frequency response	
NORMAL	40 Hz–14 kHz (+3, –6 dB)
CrO_2	40 Hz–14 kHz (+3, –6 dB)
METAL	40 Hz–15 kHz (+3, –6 dB)
S/N (CrO_2 type tape)	
Dolby NR off	52 dB (A-WTD)
Dolby NR on	61 dB (CCIR)
Wow and flutter	0.1 % (WRMS)
Fast forward and rewind time	Approx. 110 seconds with C-60 cassette tape

■ Compact disc player section

S/N	95 dB Filter (JIS A)
Digital filter	8 fs
D/A converter	MASH (1 bit DAC)

■ General

Power consumption	180 W
Power supply	
(For (GN) area.)	AC 50/60 Hz, 230–240 V
(For (E, EG) areas.)	AC 50/60 Hz, 230 V
(For (GC) area.)	AC 50/60 Hz, 110/127/220/240 V
Dimensions (W × H × D)	215 × 329 × 336 mm
Weight	7.6 kg

■ REMOTE CONTROL TRANSMITTER

Control keys	40 keys
Dimensions (W × H × D)	69.6 × 26.6 × 174.7 mm
Weight (without batteries)	106 g
Power source	Two "AAA" (R03/UM-4)

Notes:

1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

■ CONTENTS

	Page
BEFORE USE	2
PRECAUTION OF LASER DIODE	3
ACCESSORIES	4
STACKING THE COMPONENTS	4
CONNECTIONS	5~7
LOCATION OF CONTROLS AND COMPONENTS	8~11
REMOTE CONTROL UNIT CONTROLS AND FUNCTIONS	12
HANDLING PRECAUTIONS FOR TRAVERSE DECK	13
DISASSEMBLY INSTRUCTION	14~25
PROTECTION CIRCUITRY	25
BEFORE REPAIR AND ADJUSTMENT	25
MEASUREMENTS AND ADJUSTMENTS	26~31
DIGITAL SERVO SYSTEM	32, 33
TROUBLESHOOTING GUIDE	34, 35
BLOCK DIAGRAM	36~42
TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES	43
SCHEMATIC DIAGRAM	44~64
PRINTED CIRCUIT BOARDS	65~73
WIRING CONNECTION DIAGRAM	74, 75
TERMINAL FUNCTION OF IC'S	76~81
PACKAGING	81
REPLACEMENT PARTS LIST	82~86
MECHANISM PARTS LOCATION	87~90
REPLACEMENT PARTS LIST	91
LOADING PARTS LOCATION	92
CABINET PARTS LOCATION	93, 94
REPLACEMENT PARTS LIST	95
RESISTORS AND CAPACITORS	96~100

■ BEFORE USE

(For (GC) area.)

Be sure to disconnect the mains cord before adjusting the voltage selector.

Use a minus (–) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.

(If the power supply in your area is 117 V or 120 V, set to the "127 V" position.)

Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invlsible laser radiation is emitted from the pickup lens.
Wave length: 780nm
Maximum output radiation power from pickup: 100μW/VDE

Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG: Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780nm
Maximale Strahlungsleistung der Lasereinheit: 100μW/VDE

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

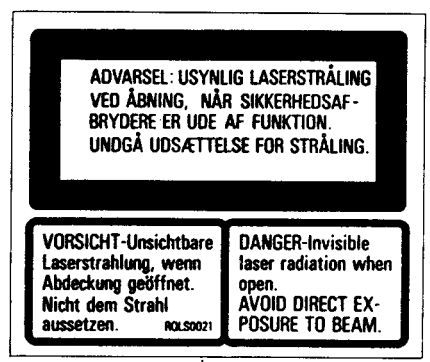
ADVARSEL: I dette a apparat anvendes laser.

• Use of caution labels

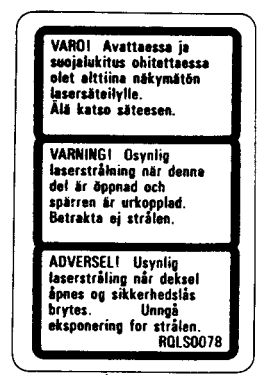
Note: ○ Mark is used, × Mark is not used.

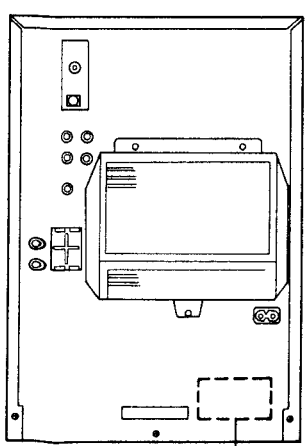
Areas	SQWD7	RQLS0021	RQLS0078
(E)	○	○	○
(EG)	○	○	×
(GC)	○	○	×
(GN)	○	○	×

RQLS0021

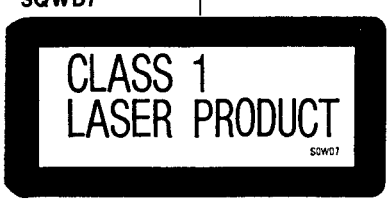

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
RQLS0021
DANGER-Invisible laser radiation when open. AVOID DIRECT EX-POSURE TO BEAM.

RQLS0078

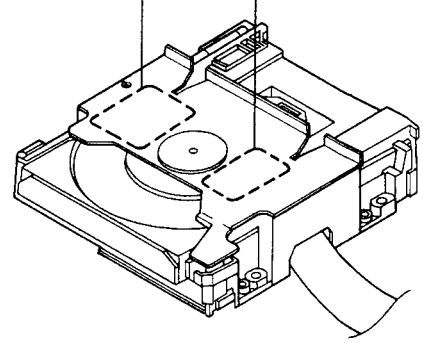

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymätön lasersäteilylle. Älä katso säteeseen.
VARNING! Osynlig laserstrålning när denne del är öppnad och spärren är urkopplad. Betrakta ej strålen.
ADVERSEL! Usynlig laserstråling når deksel åpnes og sikkerhedslås brytes. Unngå eksponering for strålen.
RQLS0078



SQWD7



LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

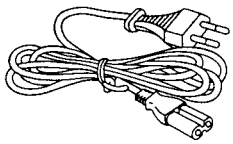


■ ACCESSORIES

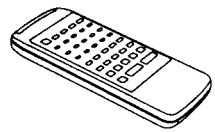
Note:

The configurations of AC power supply cord and FM indoor antenna differ according to area.

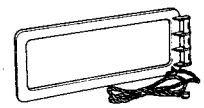
AC power supply cord... 1 pc.
[RJA0019-2K (E, EG, GC)]
[SJA173 (GN)]



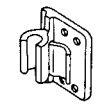
Remote control transmitter..... 1 pc.
(RAK-SC001WH)



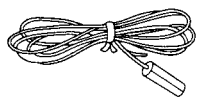
LW/MW loop antenna... 1 pc.
(SPB1163T)



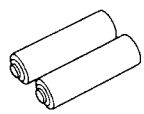
Antenna holder..... 1 pc.
(SMA233-1M)



FM indoor antenna ..... 1 pc.
[SSA270M (E, EG)]
[RSA0006 (GC, GN)]

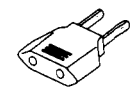


Remote control batteries "AAA"..... 2 pcs.
(R03/UM-4)



Mounting screws ..... 2 pcs.
(XTN3+10AFZ)

Power plug adaptor..... 1 pc.
(For (GC) area.)
(SJP5213-2)

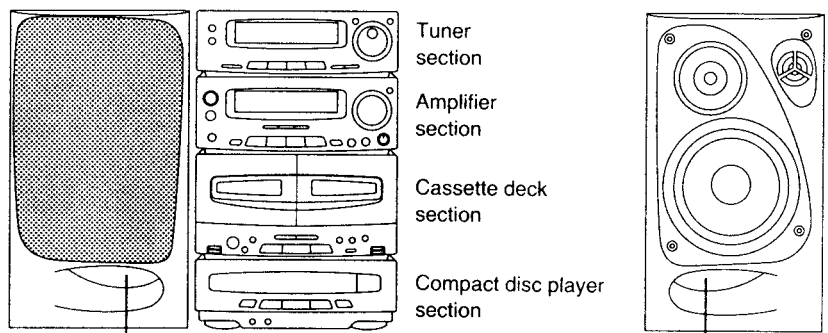


Note:

These are available on sale route.

■ STACKING THE COMPONENTS

Install the various components as shown below.



Place both speakers so that the bass-reflex part faces toward the system.

■ System layout

① Left speaker

② This system

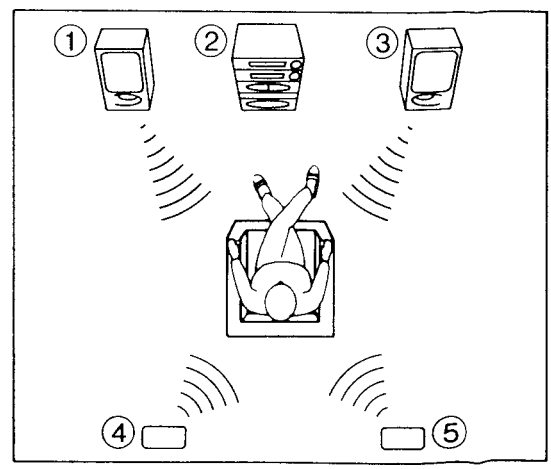
③ Right speaker

④ Surround speaker (left, not included)

⑤ Surround speaker (right, not included)

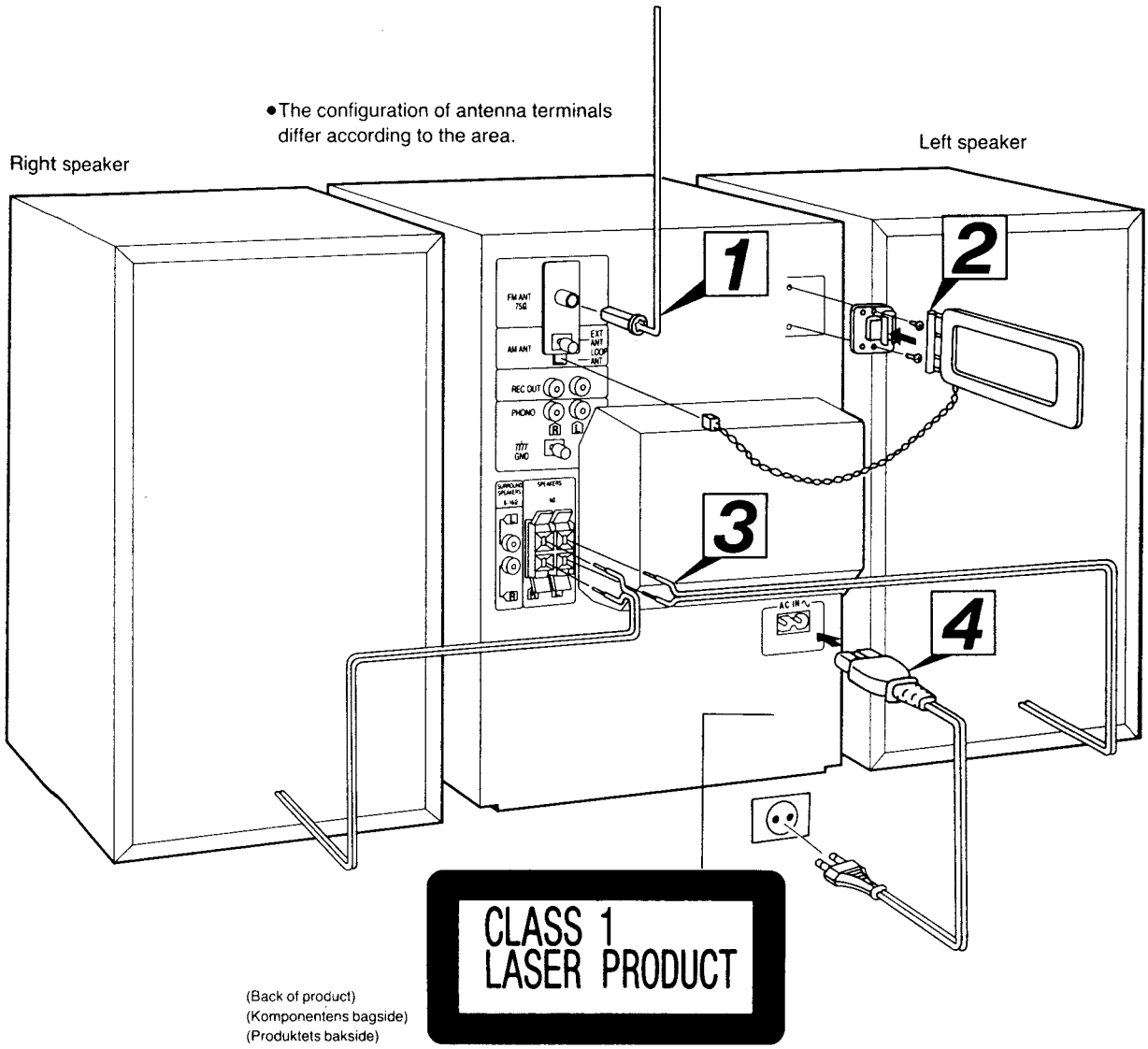
To produce a better stereo sound, install both speakers away from the system.

Surround sound effect differs according to where install the surround speakers. Install them as you like.



■ CONNECTIONS

Connect the AC power supply cord after you have connected all other antennas and cables.



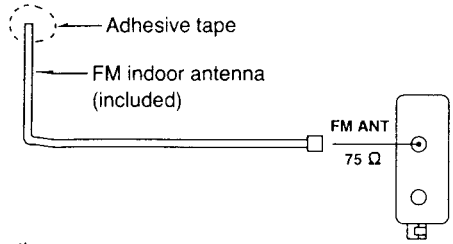
(Back of product)
(Komponentens bagside)
(Produktets bakside)

CLASS 1
LASER PRODUCT

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

1 Connect the FM indoor antenna.

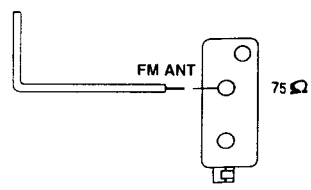
Install the antenna on a wall at a height and in a direction which result in the best reception.



The tip of the internal antenna wire should not come into contact with any metal objects.

When you cannot get a good reception with this FM indoor antenna, we recommend you install an FM outdoor antenna. (Not included. See pages 6 and 7.) Disconnect the FM indoor antenna if you install an FM outdoor antenna.

For (GC, GN) areas.



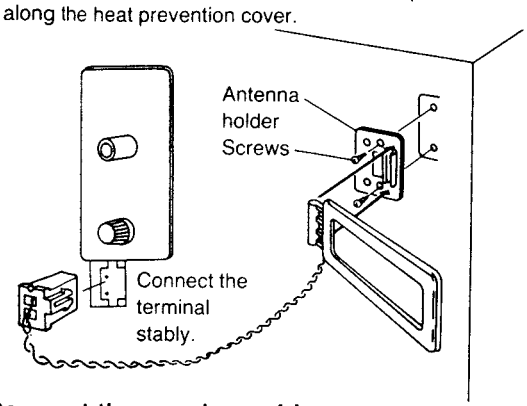
2 Connect the LW/MW loop antenna.

1. Attach the antenna holder with screws (included) to the rear panel.
2. Clamp the antenna to the antenna holder and connect the antenna terminal to the rear panel.
3. Position the loop for the best reception.

You may attach the LW/MW antenna holder to a rack or other structure.

Notes:

- To minimize noise pickup, keep the LW/MW loop antenna away from the speaker cable, power cord, and metal surfaces.
- For better reception, keep the LW/MW loop antenna cord along the heat prevention cover.

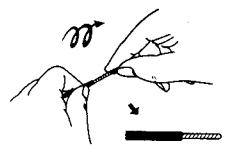


3 Connect the speaker cables.

- Be sure to connect the cable from the right speaker to the right terminal and the cable from the left speaker to the left terminal.
- Be sure to connect only positive (red) wires to positive (+) terminals and negative (black) wires to negative (−) terminals.

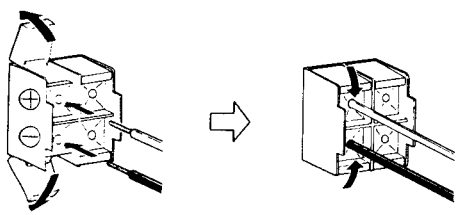
Connection of speaker cables

1. Strip off the outer covering, and twist the center conductor.



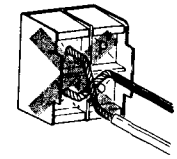
Make sure the bare ends of the wires are not unraveled. (If they are, twist them tight again.)

2. Insert the wire to the rear panel and close the lever.



Notes:

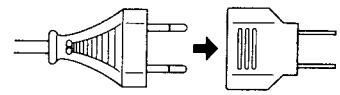
- To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker wires.



4 Connect the AC power supply cord after you have connected all other cables and cords.

For (GC) area.

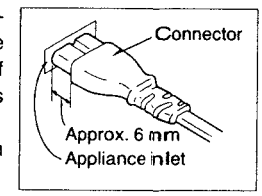
If the power plug will not fit your socket, use the power plug adaptor (included).



For areas except (GN) area:

Insertion of Connector

Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing. However there is no problem using the unit.



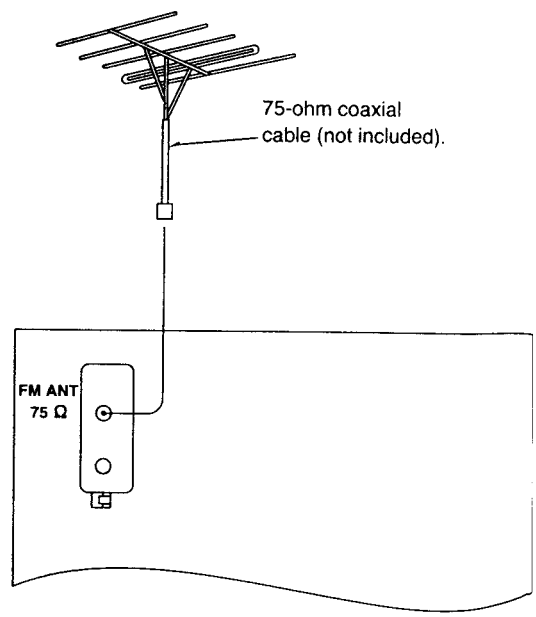
■ Optional antenna connections

FM outdoor antenna (not included)

If the FM indoor antenna does not provide satisfactory reception of FM broadcasts, use an outdoor antenna.

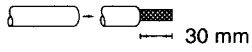
You may need an outdoor antenna if you use this system in a mountainous region or inside a reinforced-concrete building, etc. An outdoor antenna should be installed by a competent technician only.

FM outdoor antenna

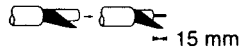


For (GC, GN) areas.
(FM outdoor antenna)

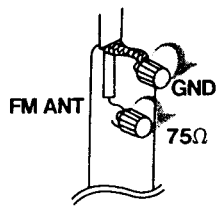
1. Remove a piece of the outer vinyl sheath from the end of the cable.



2. Bundle the shield braid, and remove a piece of the inner vinyl sheath covering the core wire.



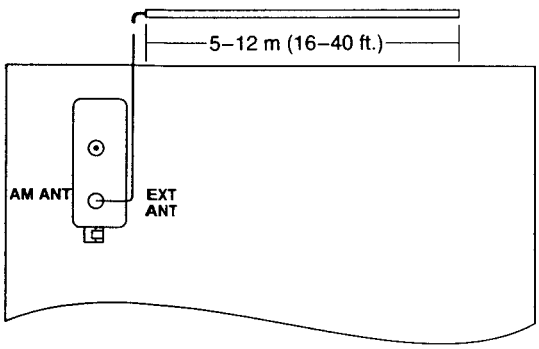
3. Connect the core wire and the shield braid.



LW/MW outdoor antenna (not included)

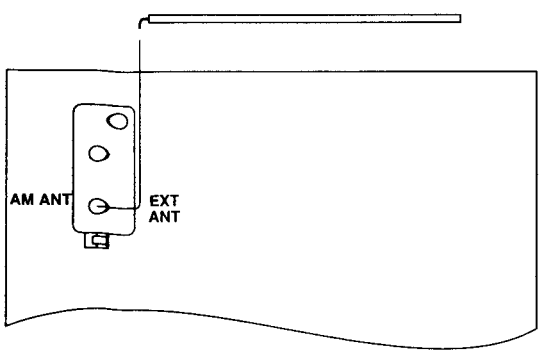
An outdoor antenna may be required in a mountainous region, or if this system is located inside a reinforced-concrete building, etc.

Run 5 to 12 m of vinyl-covered wire horizontally along a window or other convenient location.



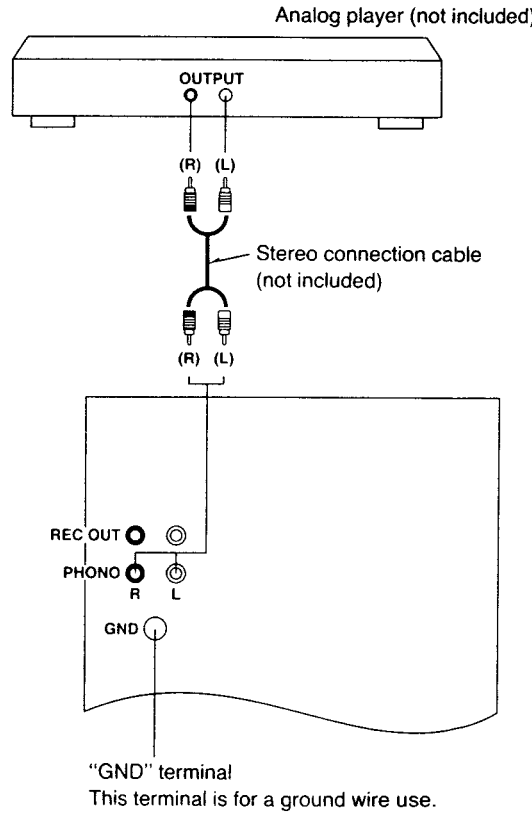
Note:
Do not remove the LW/MW loop antenna.

For (GC, GN) areas.



■ External unit connection

Analog player



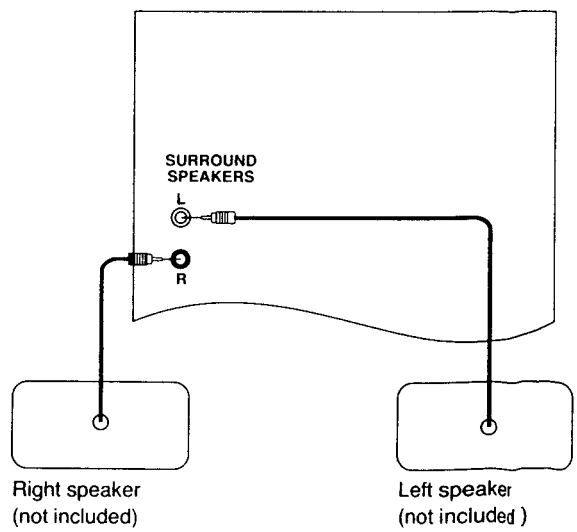
Note:
For the set with "DAT" terminal instead of 'PHONO"; Use an analog player which has built-in phono equalizer. Connect the stereo connection cable to the DAT [PLAY (IN)] terminal.

■ "REC OUT" terminal

This terminal is used to connect this system to other cassette deck you have. Source from this system could be recorded through your other cassette deck.

For (GC, GN) areas.
DAT (digital audio tape deck, not included) can be also connected to this system instead of an analog player.

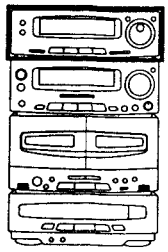
Surround speakers

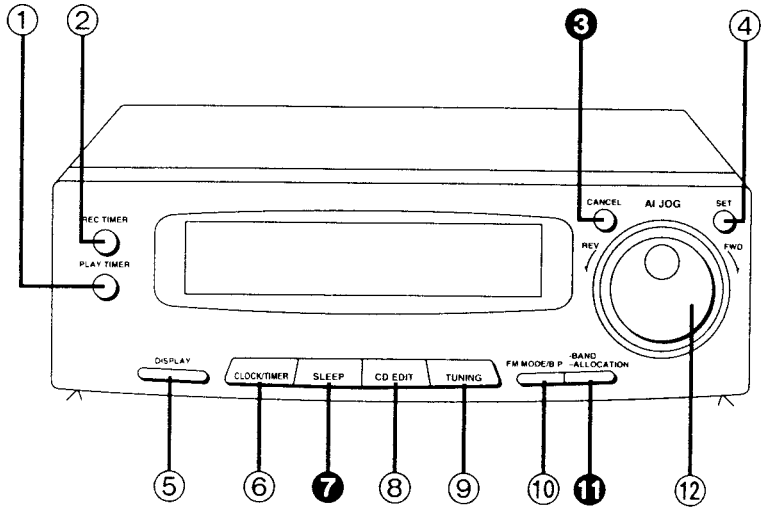


Notes:
- Be sure to connect both speaker systems. If only one side is connected, no sound will be heard.
- Install each speaker left and right at the back of the listening space.

■ LOCATION OF CONTROLS AND COMPONENTS

The functions indicated by the numbers with black background (for example ❸) can also be activated from the remote control transmitter. (See page 12.)





Tuner section

① Timer play button (PLAY TIMER)
Use for timer play (when you want play to begin automatically at a preset time).

② Timer recording button (REC TIMER)
Use for timer recording (when you want to begin recording automatically at a preset time).

❸ Cancel button (CANCEL)
Press to cancel the contents chosen with the jog dial.

④ Set button (SET)
Press to set various functions.

⑤ Display select button (DISPLAY)
Press to select the display (mode display, clock, tape counter, etc.).

⑥ Clock/timer button (CLOCK/TIMER)
Use to select the desired timer mode or to adjust the clock.

❼ Sleep timer button (SLEEP)
Press when you want the system to turn itself off.

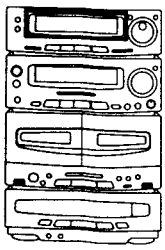
⑧ Compact disc edit-recording mode select button (CD EDIT)
Press to select the desired edit-recording mode.

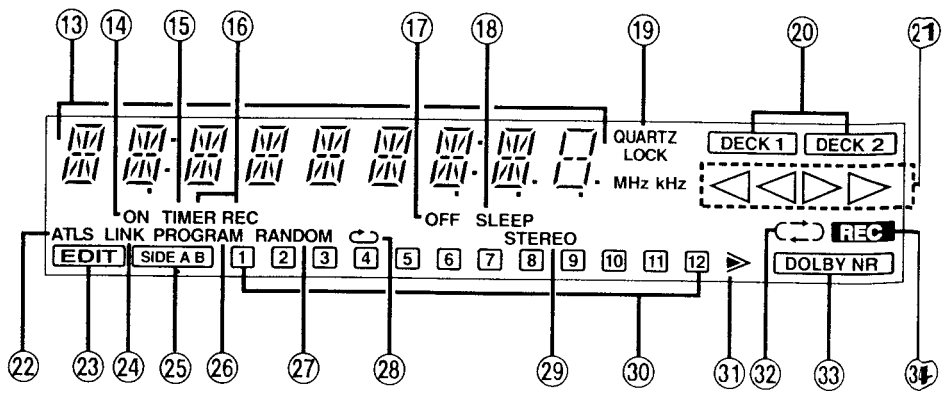
⑨ Tuning mode select button (TUNING)
Press to select the preset or manual tuning mode.

⑩ FM mode/beat proof button (FM MODE/B.P)
Press to select the FM listening mode (stereo or monaural) during FM broadcasts or to reduce the unwanted beat signals (whistle) during recording of a LW/MW broadcast.

⓫ Band select button (-BAND, -ALLOCATION)
Press to select the LW, MW or FM radio band.
Press and hold to change the MW frequency step.

⑫ Jog dial (AI JOG)
Use to select the contents of the mode, i.e., select tracks in CD player mode or stations in the tuner mode, as well as many other functions.





Display section

⑬ **Alphanumeric display**
Shows the selected source, present time, tape counter and the contents of the timer setting, received frequencies, CD edit-recording mode, etc.

⑭ **Timer on-time indicator (ON)**
Shows the timer on-time (the time the system is set to go on).

⑮ **Timer play indicator (TIMER)**
Lights when you press the timer play button.

⑯ **Timer recording indicator (TIMER REC)**
Lights when you press the timer recording button.

⑰ **Timer off-time indicator (OFF)**
Shows the timer off-time (the time the system is set to shut off).

⑱ **Sleep timer indicator (SLEEP)**
Lights when you press the sleep timer button.

⑲ **Quartz lock indicator (QUARTZ LOCK)**
Lights when you precisely tune in a broadcast station.

⑳ **Deck 1/deck 2 indicator (DECK 1, DECK 2)**
Lights to show which deck is operational (deck 1 or deck 2).

㉑ **Tape direction indicators (◁•▷ , ◁◁•▷▷)**
Lights when you play or record the tape.
Flashes when you quickly search for the beginning of a program (TPS), etc.
Shows the direction of tape travel.

㉒ **Automatic tape level setting indicator (ATLS)**
Lights when you use ATLS recording.

㉓ **Compact disc edit-recording indicator (EDIT)**
Lights when you use the edit-recording from a compact disc.

㉔ **Link indicator (LINK)**
Lights to show the disc link is possible when you use the edit-recording from a compact disc.

㉕ **Tape side indicator (SIDE A, B)**
Shows which side of the cassette tape (A or B) will be recorded on when you use the edit-recording of a compact disc.

㉖ **Program indicator (PROGRAM)**
Lights during the program play mode of the compact disc.

㉗ **Random play indicator (RANDOM)**
Lights during the random play mode of the compact disc.

㉘ **Repeat play indicator (⟲)**
Lights during the repeat play mode of the compact disc.

㉙ **FM stereo indicator (STEREO)**
Lights when you receive an FM stereo broadcast. It will not light if you are using the FM mode/beat proof button to select monaural mode.

㉚ **Matrix display (1–12)**
Shows the number of tracks and preset channels.

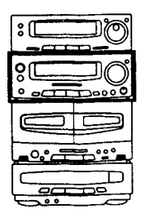
㉛ **Over indicator (➢)**
Lights if there are 13 or more tracks on the compact disc.

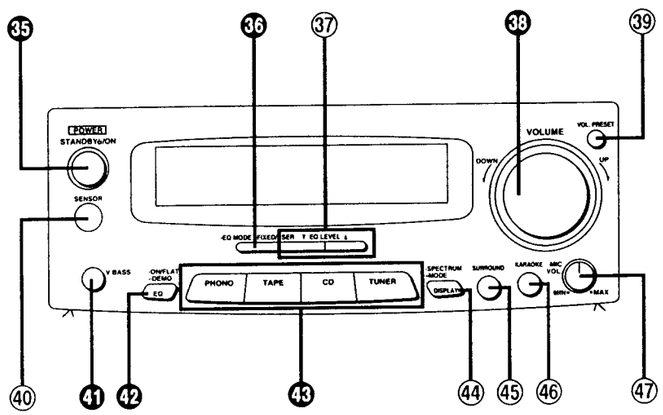
㉜ **Reverse mode indicators (⇄) (⇄) (⇄)**
Shows which of the reverse modes you selected with the reverse mode button.

㉝ **Dolby noise reduction indicator (DOLBY NR)**
Lights when you activate the Dolby noise reduction system.

㉞ **Recording indicator (REC)**
Lights when the system is in the recording (recording standby) mode.

•According to the area, there is a set with ㊺ DAT instead of ㊻ PHONO.





Amplifier section

㉟ **Power "STANDBY ⏻/ON" switch (POWER, STANDBY ⏻/ON)**
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

㊱ **Equalizer mode select button (-EQ MODE, –FIXED/USER)**
This is used to select the equalizer mode. If you press and hold this button, the equalizer mode (FIXED or USER) will be switched.

㊲ **Equalizer level-control buttons (EQ LEVEL)**
These buttons are used to adjust of the equalization level.

㊳ **Volume level control (VOLUME)**
Turn to adjust the volume level.
Note that –– dB is the lowest volume setting and 0 dB is the highest.

㊴ **Volume preset button (VOL. PRESET)**
Use to preset volume for timer play.

㊵ **Remote control signal sensor (SENSOR)**
Receives the signals from the remote control.

㊶ **V. bass button (V. BASS)**
Press to boost the dynamic low-frequency ranges.

㊷ **Equalizer ON/FLAT button (EQ, -ON/FLAT, –DEMO)**
This button is used to switch the equalizer on or flat. If you press and hold this button, sound effects will be sequentially changed (Demonstration function).

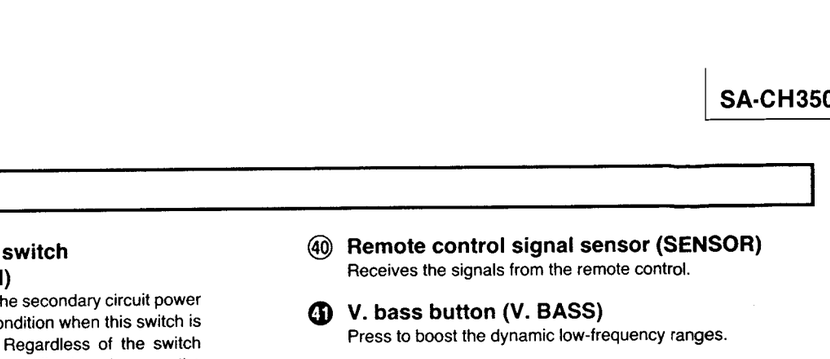
㊸ **Input select buttons (PHONO, TAPE, CD, TUNER)**
Press to select the sound source.

㊹ **Display mode select button (DISPLAY, -SPECTRUM, –MODE)**
This button is used to select one of five spectrum curves. If you press and hold this button, the display mode will change.

㊺ **Surround button (SURROUND)**
This button is used to activate the surround sound effect.

㊻ **Karaoke button (KARAOKE)**
This button is used to perform "karaoke" (making microphone mixing with an accompaniment).

㊼ **Microphone volume control (MIC VOL.)**
This control is used to adjust the microphone volume level.



Display section

㊽ **Equalizer flat indicator (EQ FLAT)**
Lights when the equalizer function is turned off.

㊾ **Fixed indicator (FIXED)**
Lights when the pre-programmed equalization curve is selected.

㊿ **User indicator (USER)**
Lights when the "USER" mode equalization curve is selected.

(51) **Equalization mode indicators (HEAVY~CAR ST)**
Shows the mode which is currently used in the five equalization curves.

(52) **Equalizer on indicator (EQ ON)**
Lights when the equalization function is turned on.

(53) **V. Bass indicator (V. BASS)**
Lights when the V. Bass mode is activated

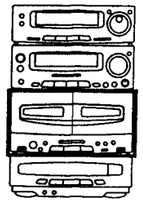
(54) **Surround indicator (SURROUND)**
Lights when the surround effect is activated.

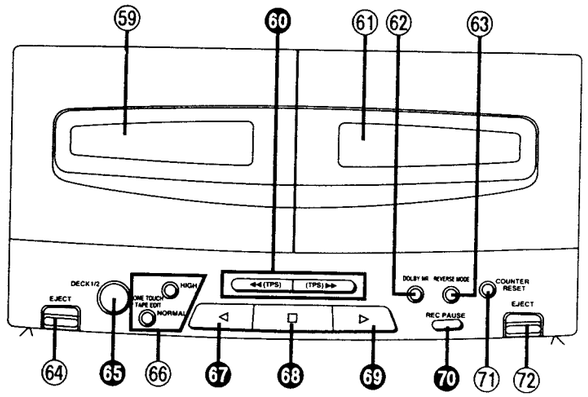
(55) **KARAOKE indicator (KARAOKE)**
Lights when the KARAOKE mode is activated.

(56) **Equalization/spectrum analysis level display**
Shows the equalization/spectrum analysis level.

(57) **Volume level display**
Shows the volume level.

(58) **Muting indicator (MUTING)**
Lights when the muting mode is activated.





Cassette deck section

59 Deck 1 cassette holder

60 Fast-forward/rewind/tape program sensor (TPS) buttons [◀◀ (TPS), (TPS) ▶▶]
Press to advance or rewind the tape, or to quickly search for the beginning of a track while the tape is being played.

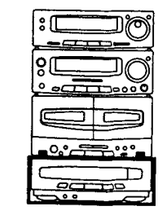
61 Deck 2 cassette holder

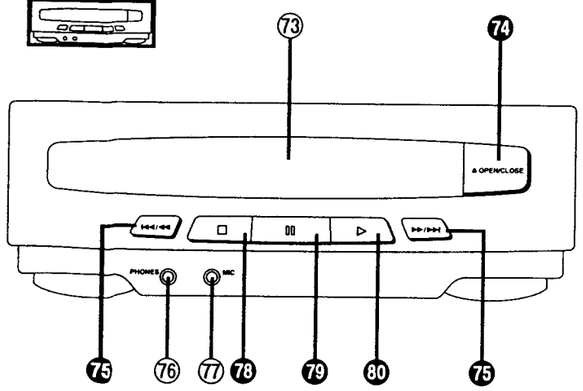
62 Dolby noise reduction button (DOLBY NR)
Use to reduce the hissing noise heard from the tape. This system has the Dolby B-type noise reduction system.

63 Reverse mode select button (REVERSE MODE)
Press to select the reverse mode (for playback and recording).

64 Deck 1 cassette eject button (EJECT)
Press to open the deck 1 cassette holder.

65 Deck 1/deck 2 select button (DECK 1/2)
Press to select the deck to be operated.





66 One-touch tape edit buttons (ONE TOUCH TAPE EDIT, NORMAL, HIGH)
Press to start the tape-to-tape recording.

67 Reverse-side playback button (◁)
Press to start the playback or recording (deck 2) in the reverse direction.

68 Stop button (□)
Press to stop the tape.

69 Forward-side playback button (▷)
Press to start the playback or recording (deck 2) in the forward direction.

70 Record/record standby button (REC PAUSE)
Press to put deck 2 into the record standby mode.

71 Tape counter reset button (COUNTER RESET)
Press to reset the tape counter indicator to 000.

72 Deck 2 cassette eject button (EJECT)
Press to open the deck 2 cassette holder.

Compact disc player section

73 Disc tray

74 Disc tray open/close button (▲ OPEN/CLOSE)
Press to open and close the disc tray.

75 Skip/search buttons (⏮/◀◀ • ▶▶/⏭)
Press to move forward or backward through the tracks on a disc, or to hear disc sound at high speed while searching in the play mode.

76 Headphones jack (PHONES)
Plug headphones cord into this jack.

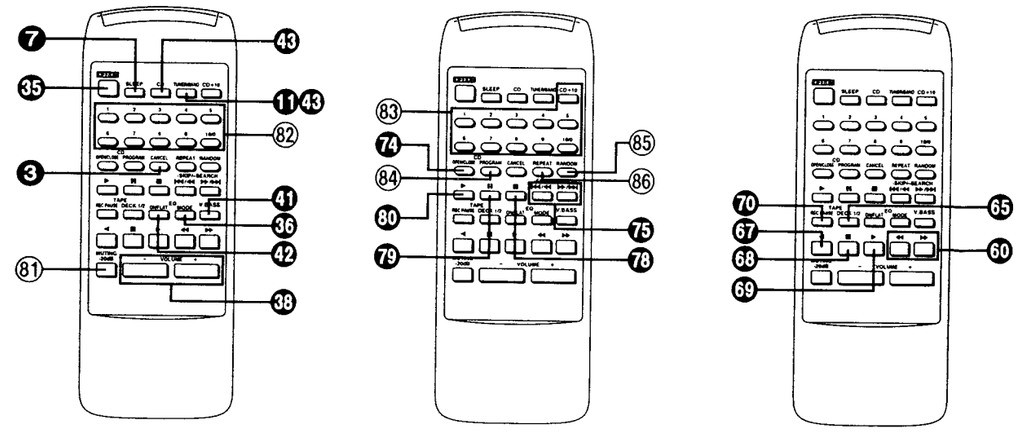
77 Microphone jack (MIC)

78 Stop button (□)
Press to stop the disc play.

79 Pause button (▯▯)
Press to stop the disc play temporarily.

80 Play button (▷)
Press to start disc play.

■ REMOTE CONTROL UNIT CONTROLS AND FUNCTIONS



Common operation controls

The function description of buttons 35, 36, 38, 41, 42 and 43 is as described under "Amplifier section" on pages 9 and 10.

81 Muting button (MUTING −20 dB)
Press to temporarily attenuate (mute) the volume level.

Tuner controls

The function description of buttons 3, 7 and 11 is as described under "Tuner section" on page 8.

82 Preset-tuning buttons (1–10/0)
Press to select the preset channel of the tuner.

Compact disc controls

The function description of buttons 74, 75, 76, 78 and 80 is as described under "Compact disc player section" on page 11.

83 Numeric buttons (1–10/0, +10)
Use to specify the compact disc's track.

84 Program button (PROGRAM)
Press to activate the program play mode. You can then enter specific tracks using the numeric buttons.

85 Random button (RANDOM)
Press to play the disc's tracks in random order.

86 Repeat button (REPEAT)
Press to activate the repeat mode.

Cassette deck controls

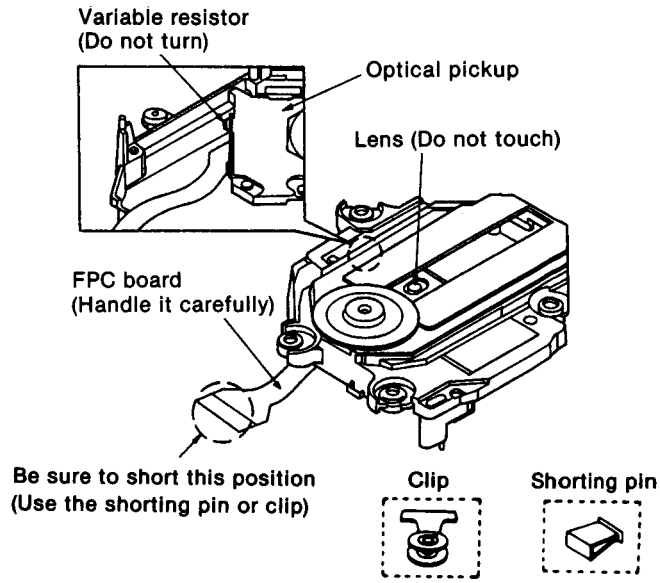
The function description of buttons 60, 65, 67, 68, 69 and 70 is as described under "Cassette deck section" on page 11.

■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

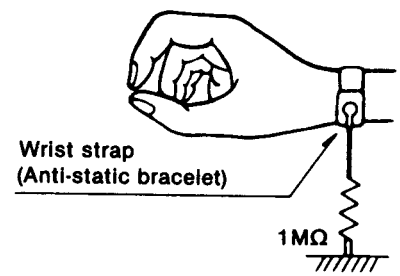
• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an antistatic shorting pin is inserted into the flexible board (FPC board).
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.



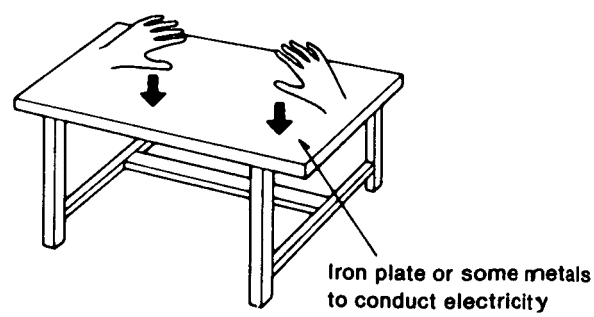
• Grounding for electrostatic breakdown prevention

1. Human body grounding.
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.



Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



■ DISASSEMBLY INSTRUCTION

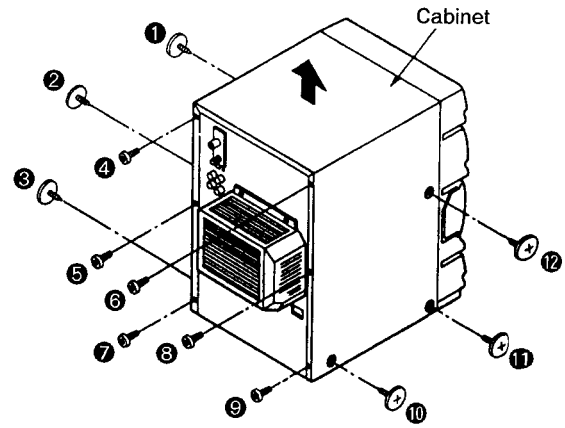
Warning: This product uses a laser diode. Refer to caution statements on page 3.

ACHTUNG: • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

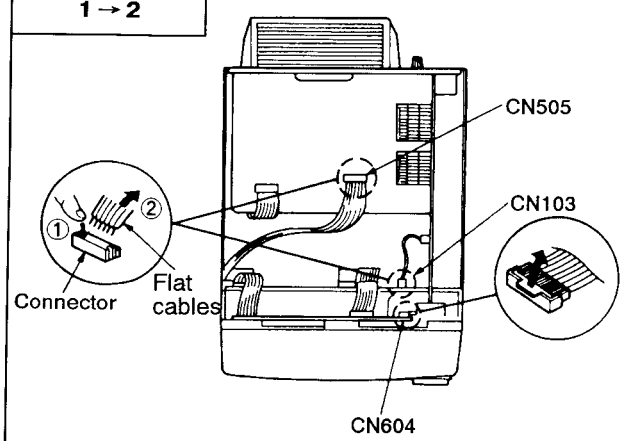
※ This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.

Ref.No. 1	Removal of the cabinet
Procedure 1	

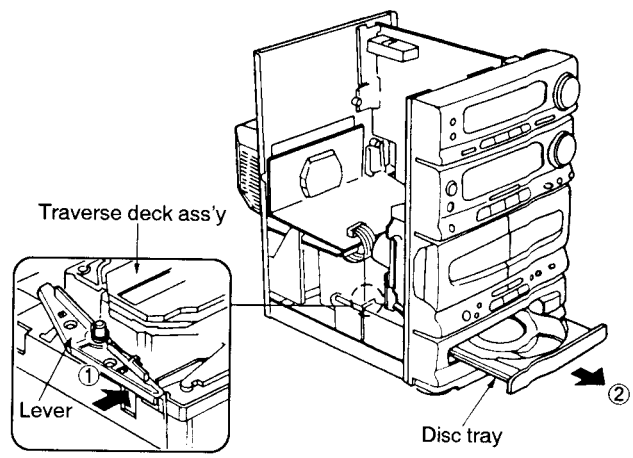
• Remove the 12 screws(❶ ~ ⓬).



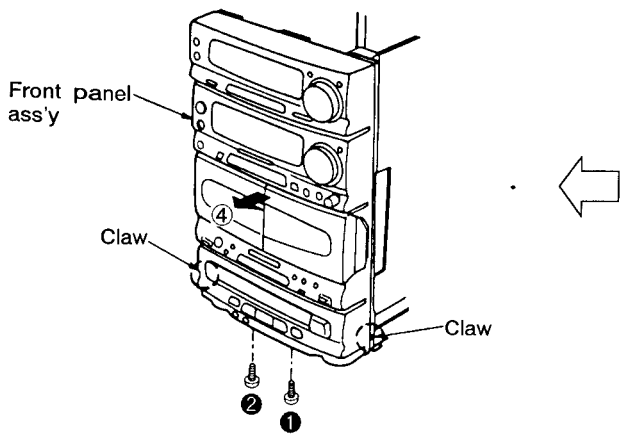
Ref.No. 2	Removal of the front panel ass'y
Procedure 1 → 2	



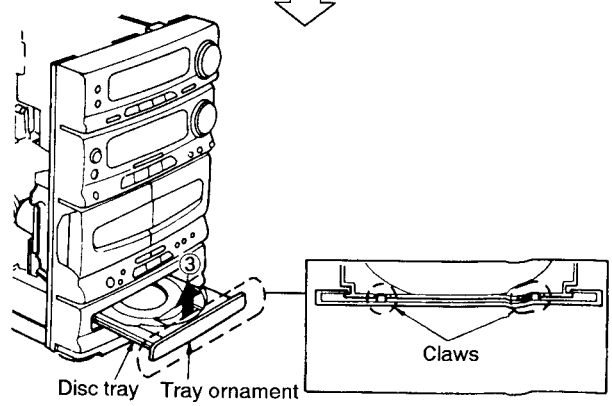
1. Remove the flat cables(CN103, CN505).
2. Remove the 1 connector(CN604).



3. When the lever is pressed in the direction of arrow ①, the traverse deck ass'y moves down and the disc tray is ejected to the front side slightly.
4. Draw the disc tray in the direction of arrow ②.

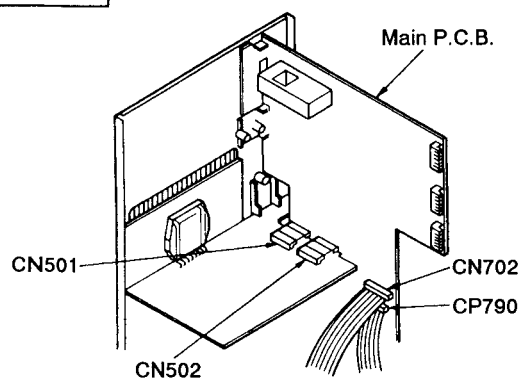


7. Remove the 2 screws(❶, ❷).
8. Release the 2 claws and then remove the front panel ass'y in the direction of arrow ④.

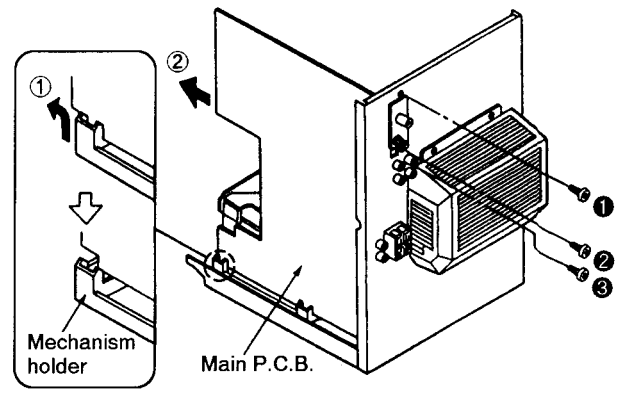


5. Release the 2 claws of the tray ornament and then remove the tray ornament in the direction of arrow ③.
6. After removing the tray ornament, restore the disc tray to the unit.

Ref.No. 3	Removal of the main P.C.B.
Procedure 1→2→3	



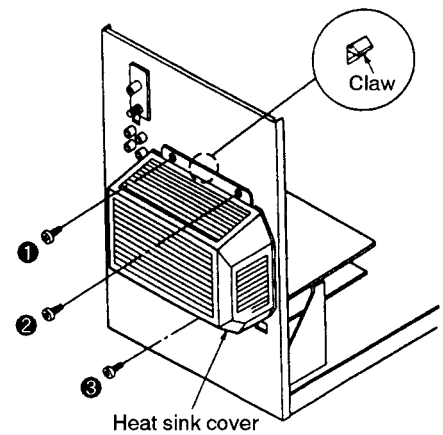
1. Remove the 3 connectors(CN501, CN502, CP790).
2. Remove the flat cable(CN702).



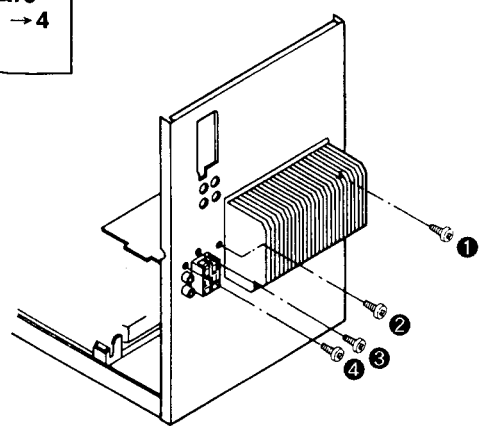
3. Remove the 3 screws(❶~❸).
4. Remove the main P.C.B. from the mechanism holder in the direction of arrow ①.
5. Remove the main P.C.B. in the direction of arrow ②.

Ref.No. 4	Removal of the heat sink cover
Procedure 1→4	

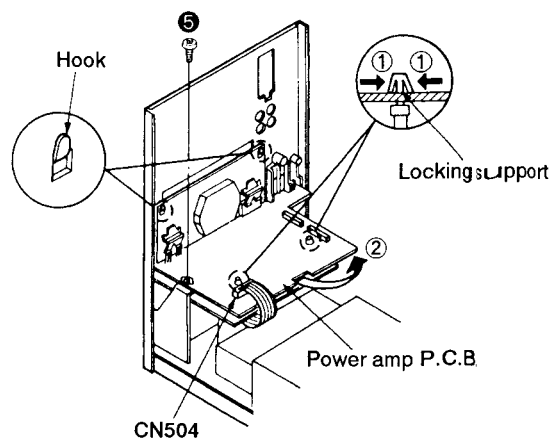
1. Remove the 3 screws(❶~❸).
2. Release the 1 claw.



Ref.No. 5	Removal of the power amp P.C.B.
Procedure 1→2→3→4→5	



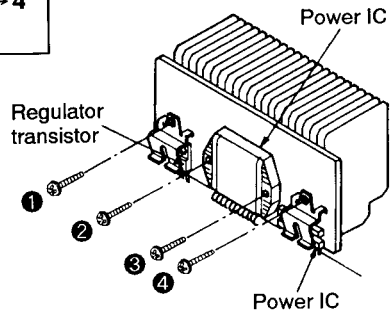
1. Remove the 4 screws(❶~❹).



2. Remove the screw(❺).
3. Remove the flat cables(CN504).
4. Push the claw of the locking support in the direction of arrow ①, and then remove the power amp P.C.B.
5. Remove the hook and then remove the main P.C.B. in the direction of arrow ②.

Ref.No. 6	Removal of the power IC and regulator transistor

Procedure 1 → 2 → 3 → 4 → 5 → 6

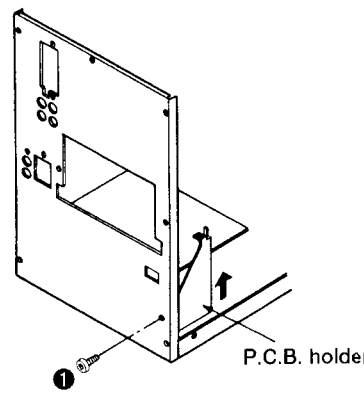


1. Unsolder the power IC and regulator transistor.
2. Remove the 4 screws(❶ ~ ❹).

Note: When mounting the power IC and regulator transistor, apply silicone compound(RFKX0002 or equivalent agent) the rear side of power IC and regulator transistor.

Ref.No. 7	Removal of the P.C.B. holder

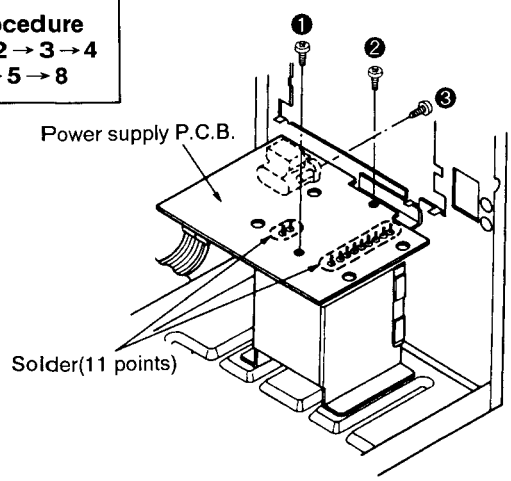
Procedure 1 → 2 → 3 → 4 → 5 → 7



1. Remove the 1 screw(❶).
2. Remove the P.C.B. holder in the direction of arrow.

Ref.No. 8	Removal of the power supply P.C.B.

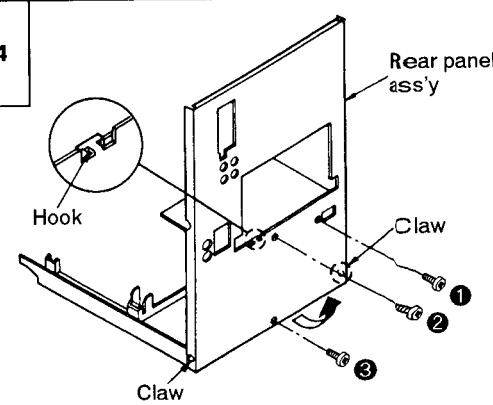
Procedure 1 → 2 → 3 → 4 → 5 → 8



1. Remove the 3 screws(❶ ~ ❸).
2. Unsolder the 11 points.

Ref.No. 9	Removal of the rear panel ass'y

Procedure 1 → 2 → 3 → 4 → 5 → 7 → 9

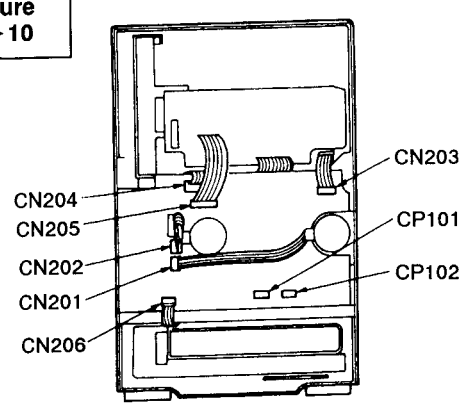


1. Remove the 3 screws(❶ ~ ❸).
2. Release the 2 claws and then remove the rear panel ass'y in the direction of arrow.

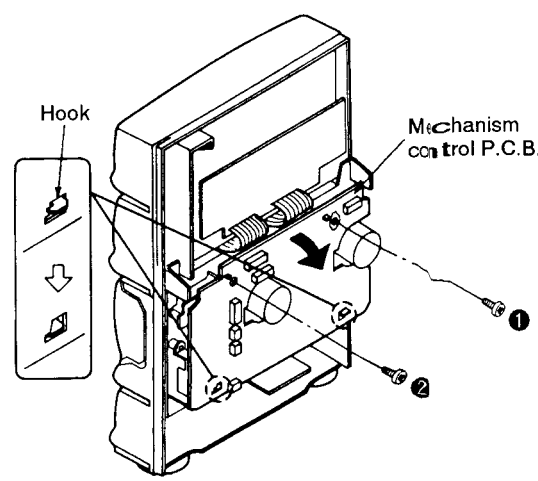
Note: Be careful to the hook when removing the rear panel ass'y.

Ref.No. 10	Removal of the mechanism control P.C.B.

Procedure 1 → 2 → 10



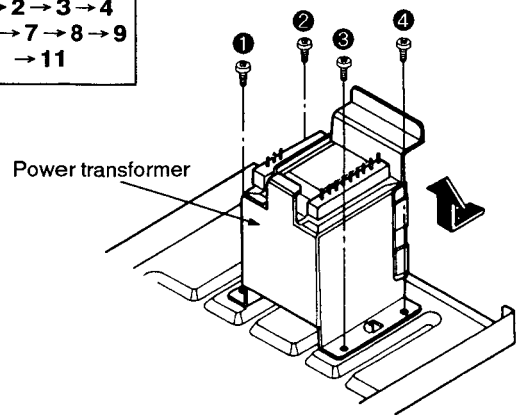
1. Remove the 2 connectors(CP101, CP102).
2. Remove the 6 flat cables(CN201, CN202, CN203, CN204, CN205, CN206).



3. Remove the 2 screws(❶, ❷).
4. Tilt the mechanism control P.C.B. in the direction of arrow and then release the 2 hooks.

Ref.No. 11	Removal of the power transformer

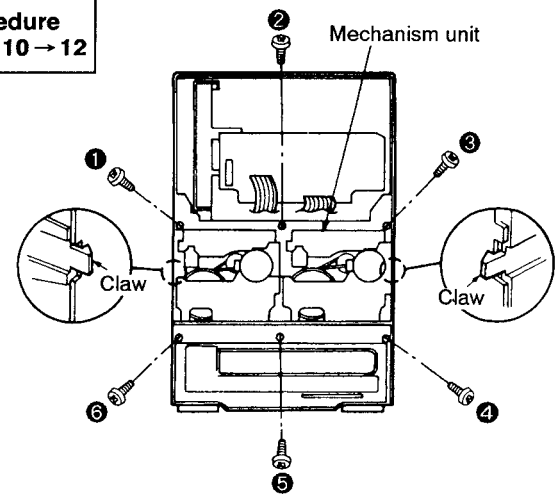
Procedure
1 → 2 → 3 → 4 → 5 → 7 → 8 → 9 → 11



1. Remove the 4 screws(❶ ~ ❹).
2. Remove the power transformer in the direction of arrow.

Ref.No. 12	Removal of the mechanism unit (DECK1 and DECK2)

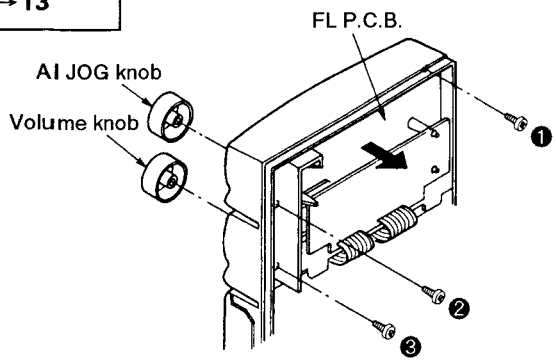
Procedure
1 → 2 → 10 → 12



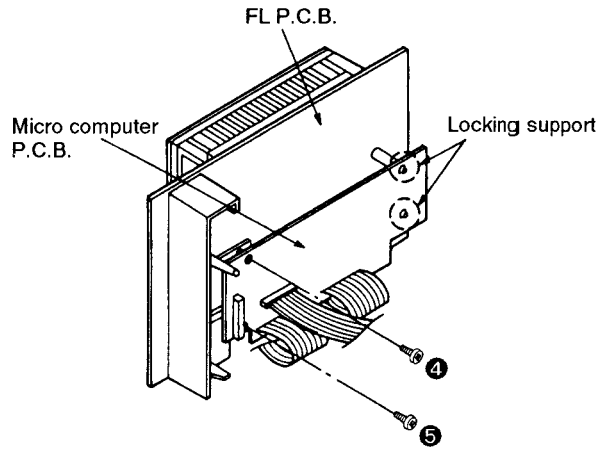
1. Remove the 6 screws(❶ ~ ❻).
2. Release the 2 claws.

Ref.No. 13	Removal of the FL P.C.B. and micro computer P.C.B.

Procedure
1 → 2 → 10 → 12 → 13



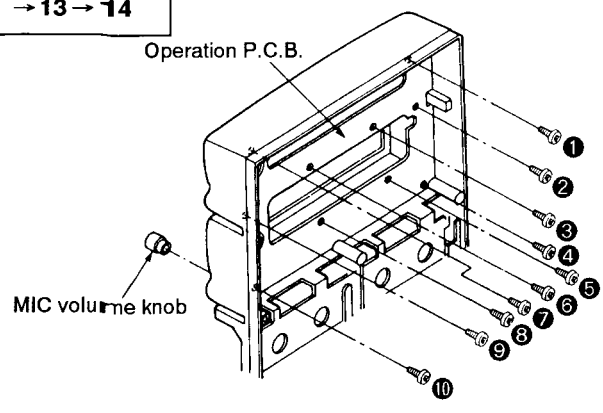
1. Pull out the 2 knobs(Volume and AI JOG knob).
2. Remove the 3 screws(❶ ~ ❸).
3. Remove the FL P.C.B. in the direction of arrow.



4. Remove the 2 screws(❹, ❺).
5. Release the 2 claws of the locking support and then remove the micro computer P.C.B.

Ref.No. 14	Removal of the operation P.C.B.

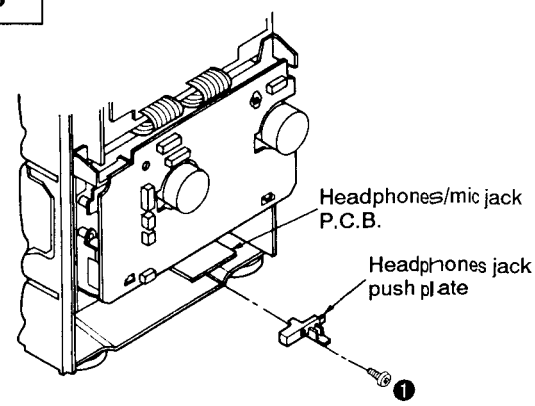
Procedure
1 → 2 → 10 → 12 → 13 → 14



1. Pull out the MIC volume knob.
2. Remove the 10 screws(❶ ~ ❿).

Ref.No. 15	Removal of the headphones/mic jack P.C.B.

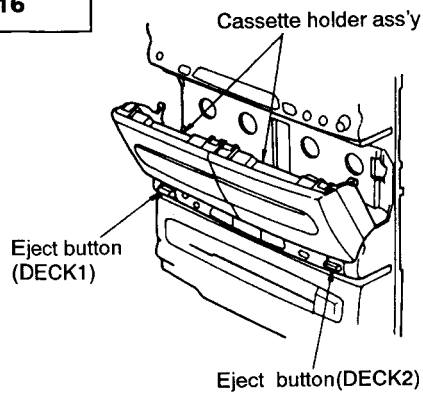
Procedure
1 → 2 → 15

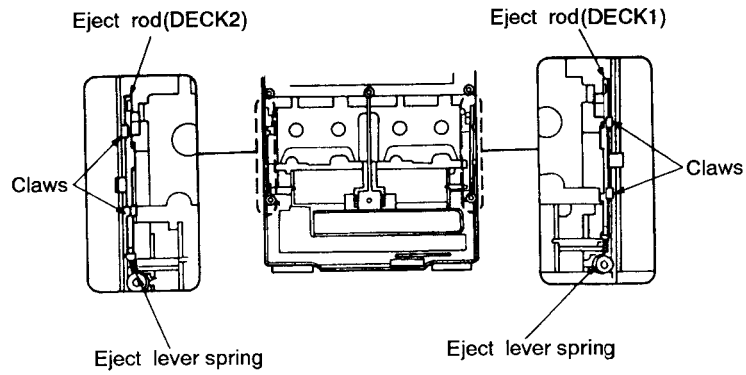


1. Remove the 1 screw(❶).
2. Remove the headphones jack push plate.

Ref.No. 16	Removal of the eject rod(DECK1 and DECK2)

Procedure
1 → 2 → 10 → 12 → 16

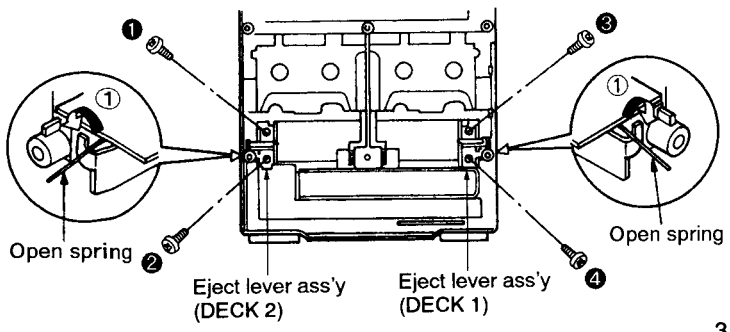


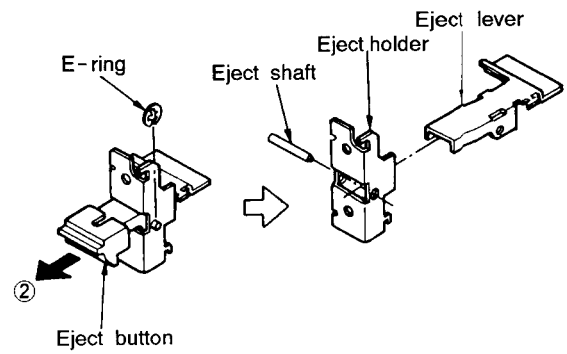


1. Push the eject button to open the cassette holder ass'y.
2. Remove the eject lever spring.
3. Release the 2 claws and then remove the eject rod.

Ref.No. 17	Removal of the eject lever, eject holder and eject button (DECK1 and DECK2)

Procedure
1 → 2 → 10 → 12 → 16 → 17

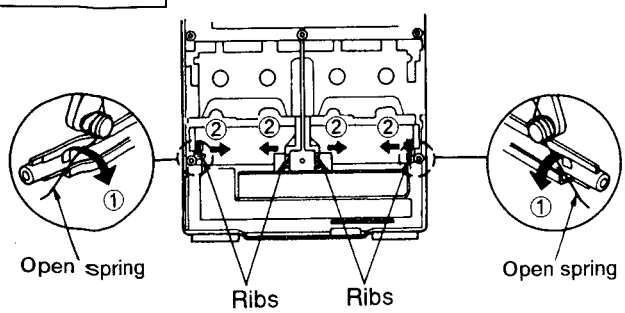


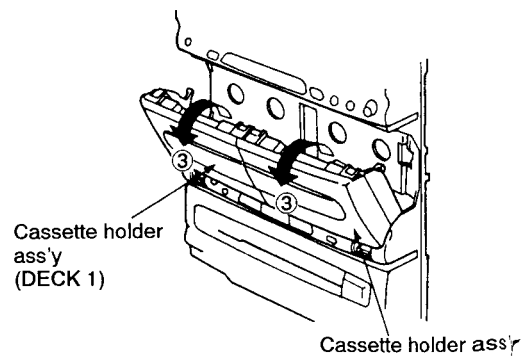


1. Remove the spring in the direction of arrow ①.
2. Remove the 4 screws(❶ ~ ❹).
3. Pull out the eject button in the direction of arrow②.
4. Remove the E-ring and pull out the eject shaft to remove the eject lever and eject holder.

Ref.No. 18	Removal of the cassette holder ass'y (DECK1 and DECK2)

Procedure
1 → 2 → 10 → 12 → 16 → 17 → 18

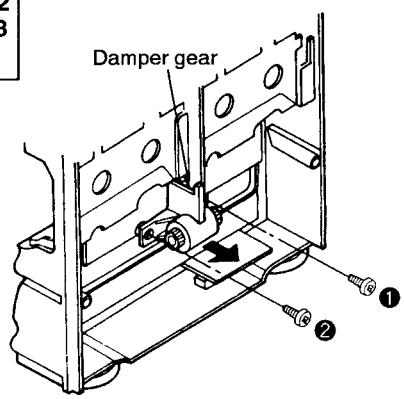




1. Remove the open spring in the direction of arrow ①.
2. Pull the cassette holder ass'y in the direction of arrow ② and then release the ribs.
3. Remove the cassette holder ass'y in the direction of arrow ③.

Ref.No. 19	Removal of the damper gear

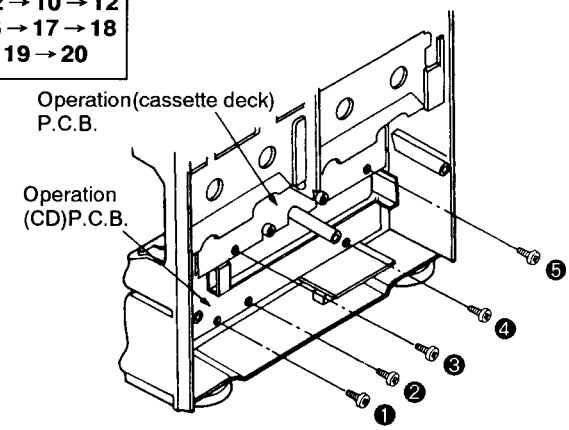
Procedure
1 → 2 → 10 → 12 → 16 → 17 → 18 → 19



1. Remove the 2 screws(❶, ❷).
2. Remove the damper gear in the direction of arrow.

Ref.No. 20	Removal of the operation(cassette deck) P.C.B. and operation(CD) P.C.B.

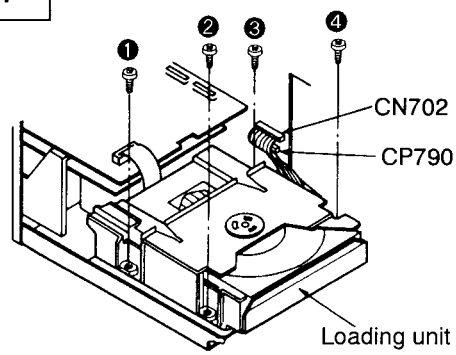
Procedure
1 → 2 → 10 → 12 → 16 → 17 → 18 → 19 → 20



1. Remove the 5 screws(❶ ~ ❺).

Ref.No. 21	Removal of the loading unit

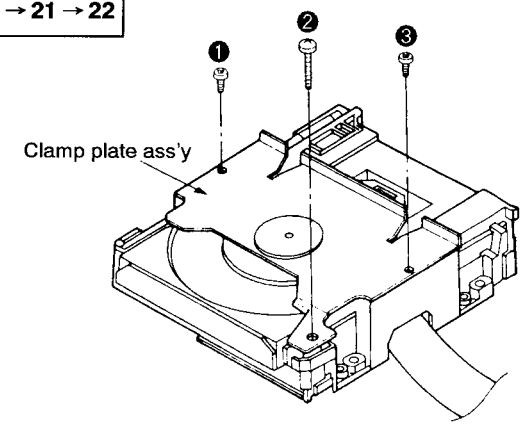
Procedure
1 → 2 → 21



1. Remove the flat cable(CN702)
2. Remove the connector(CP790).
3. Remove the 4 screws(❶ ~ ❹).

Ref.No. 22	Removal of the clamp plate ass'y

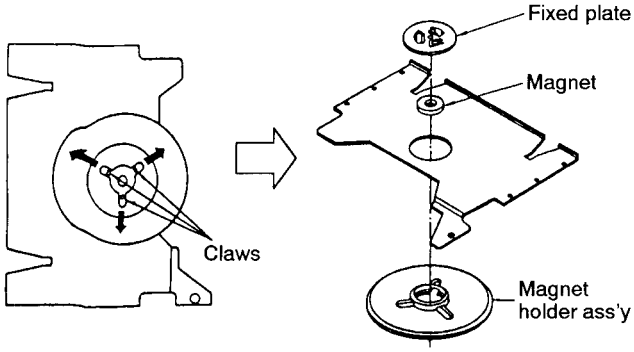
Procedure
1 → 2 → 21 → 22



• Remove the 3 screws(❶ ~ ❸).

Ref.No. 23	Removal of the fixed plate, magnet and magnet holder ass'y

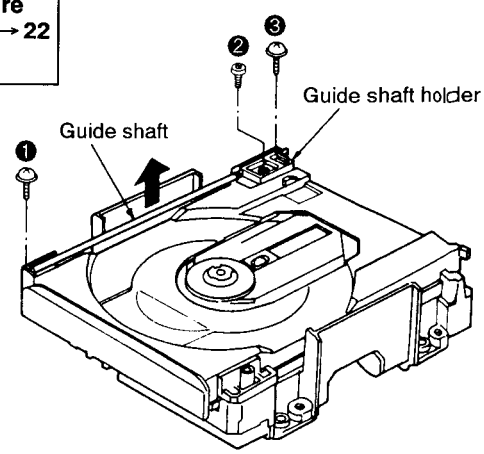
Procedure
1 → 2 → 21 → 22 → 23



• Release the 3 claws.

Ref.No. 24	Removal of the guide shaft and guide shaft holder

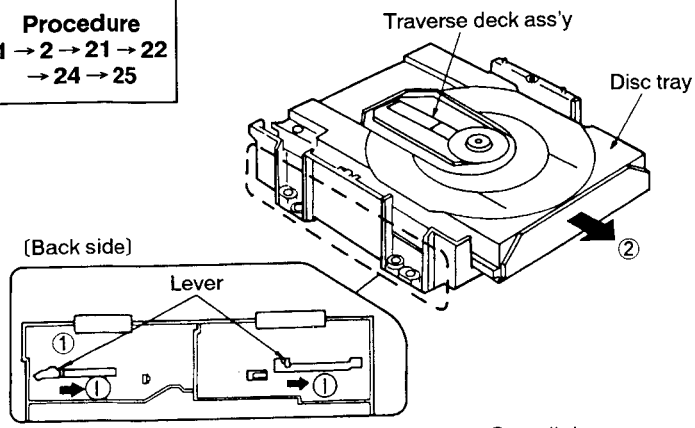
Procedure
1 → 2 → 21 → 22 → 24

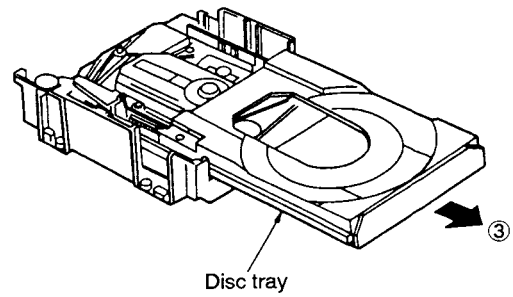


1. Remove the 3 screws(❶ ~ ❸).
2. Remove the guide shaft and guide shaft holder in the direction of arrow.

Ref.No. 25 **Removal of the disc tray**

Procedure 1 → 2 → 21 → 22 → 24 → 25





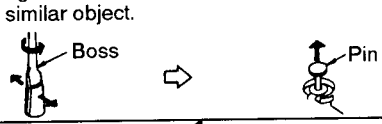
1. Push the 2 levers in the direction of arrow ① until the traverse unit goes down and the disc tray slightly in the direction of arrow ②.

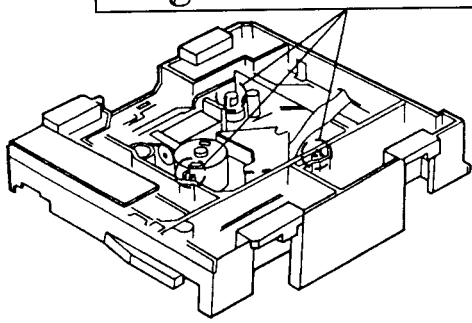
2. Remove the disc tray in the direction of arrow ③.

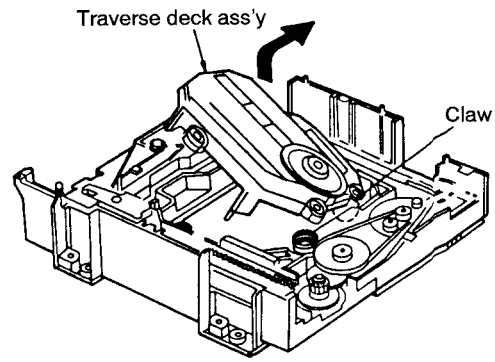
Ref.No. 26 **Removal of the traverse deck ass'y**

Procedure 1 → 2 → 21 → 22 → 24 → 25 → 26

1. Widen the boss by using a regular screwdriver or similar object.
2. Pull out the pin in the direction of arrow.





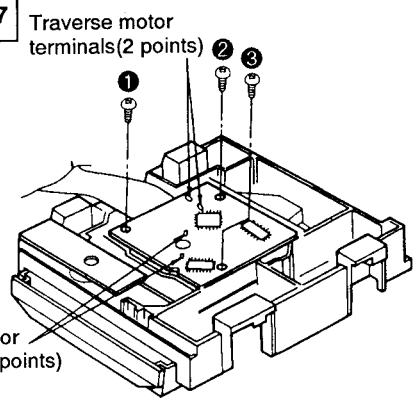


1. Remove the 3 pins.

2. Release the claw and then remove the traverse deck ass'y in the direction of arrow.

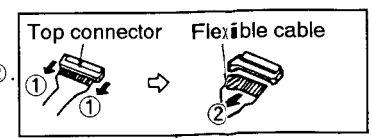
Ref.No. 27 **Removal of the servo P.C.B.**

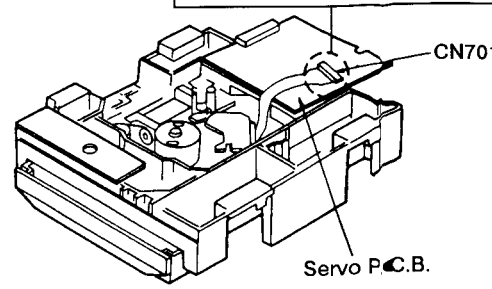
Procedure 1 → 2 → 21 → 27



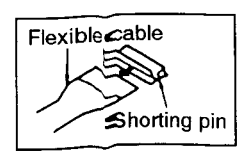
1. Remove the 3 screws(❶ ~ ❸).
2. Unsolder the spindle motor terminals(2 points).
3. Unsolder the traverse motor terminals(2 points).

※ Push the top of the connector in the direction of arrow ①, and then pull out the flexible cable in the direction of arrow ②.



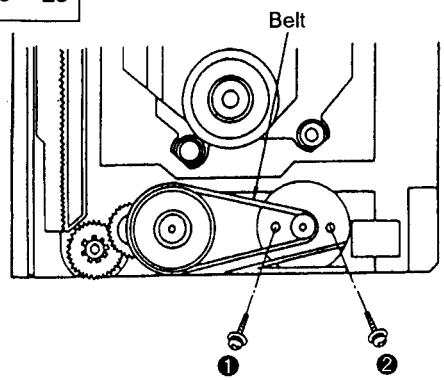


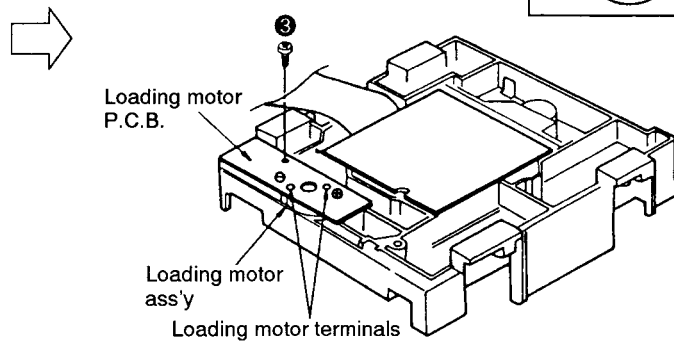
4. Remove the FPC board(CN701).
Note: Insert a shorting pin into the traverse unit flexible cable. (Refer to "handling precautions for traverse deck" on page 13.)

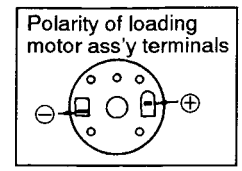


Ref.No. 28	Removal of the loading motor P.C.B. and loading motor

Procedure
1 → 2 → 21 → 22 → 24 → 25 → 28



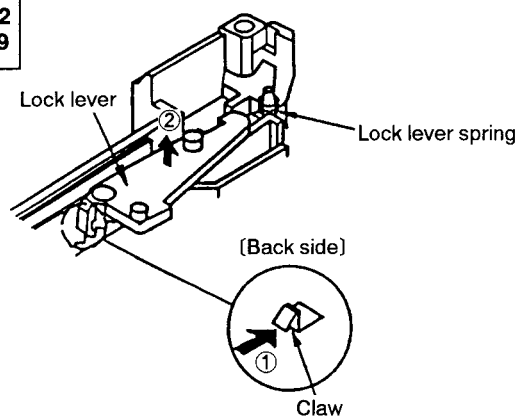




1. Remove the belt.
2. Remove the 2 screws(❶, ❷).
3. Remove the 1 screw(❸).
4. Unsolder the loading motor ass'y terminals(2 points).

Ref.No. 29	Removal of the lock lever

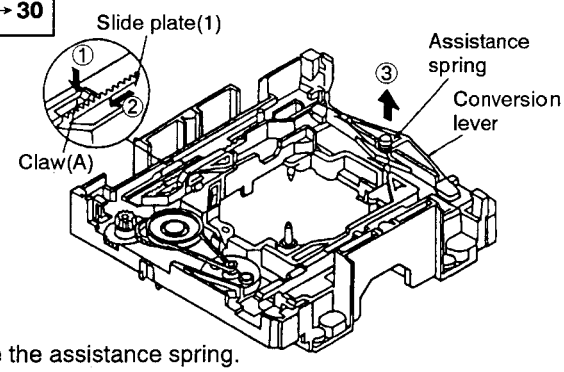
Procedure
1 → 2 → 21 → 22 → 24 → 25 → 29



1. Remove the lock lever spring.
2. Release the claw in the direction of arrow ①, and then remove the lock lever in the direction of arrow ②.

Ref.No. 30	Removal of the conversion lever

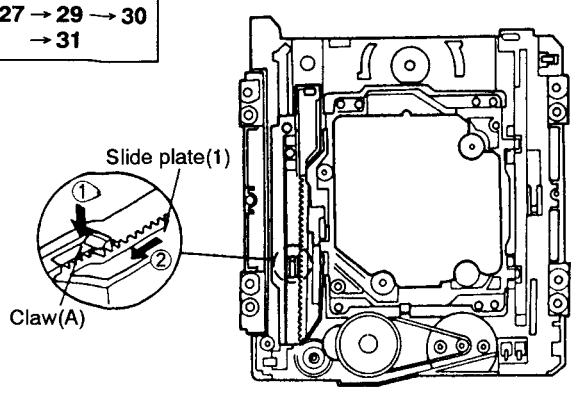
Procedure
1 → 2 → 21 → 22 → 24 → 25 → 26 → 27 → 29 → 30

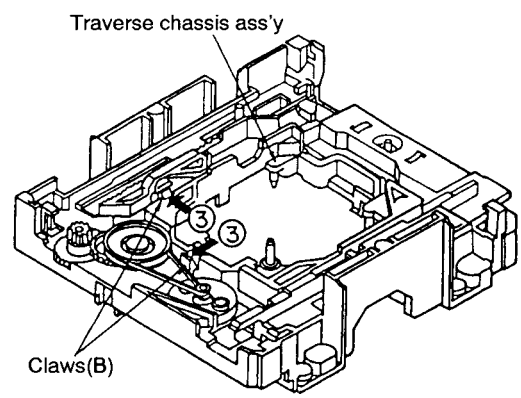


1. Remove the assistance spring.
2. Push the claw(A) in the direction of arrow ①, and then move the slide plate(1) in the direction of arrow ②.
3. Remove the conversion lever in the direction of arrow ③

Ref.No. 31	Removal of the traverse chassis ass'y

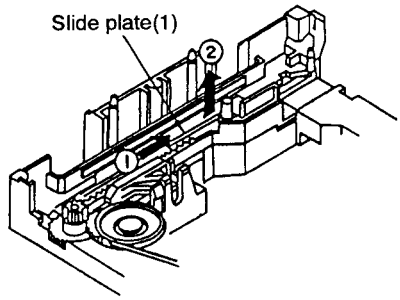
Procedure
1 → 2 → 21 → 22 → 24 → 25 → 26 → 27 → 29 → 30 → 31

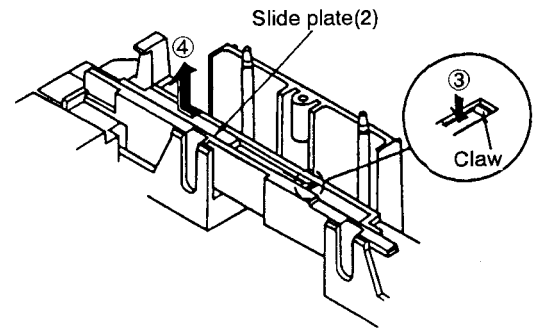




1. Push the claw(A) in the direction of arrow ①, and then move the slide plate(1) in the direction of arrow ②.
2. Push 2 claw(B) in the direction of arrow ③, and then remove the traverse chassis ass'y.

Ref.No. 32	Removal of the slide plate(1) and slide plate(2)
Procedure 1→2→21→22 →24→25→26 →27→29→30 →31→32	

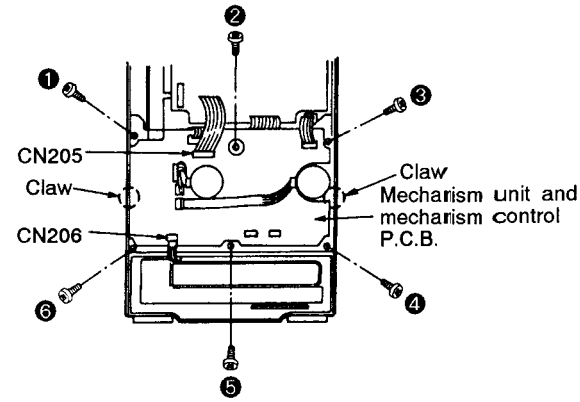




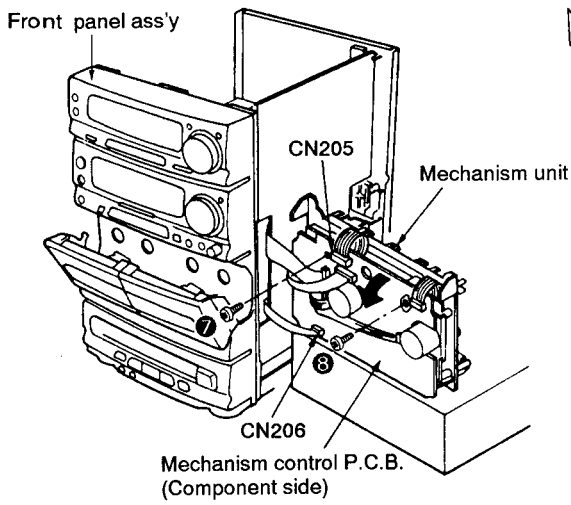
■ **Removal of the slide plate (1)**
- Move the slide plate(1) in the direction of arrow ①, and lift up the slide plate(1) in the direction of arrow ②.

■ **Removal of the slide plate (2)**
- Push the claw in the direction of arrow ③, and remove the slide plate(2) in the direction of arrow ④.

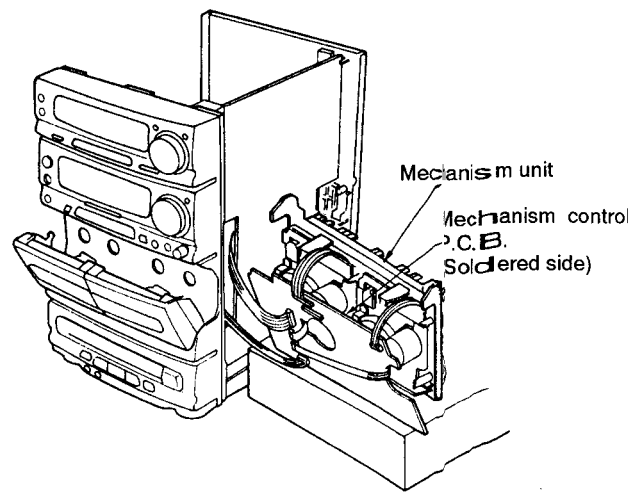
Ref.No. 33	Check of the mechanism control P.C.B.
Procedure 1→2→33	



1. Remove the 6 screws(❶~❻).
2. Remove the 2 flat cable(CN205, CN206).
3. Release the 2 claws and then remove the mechanism unit and mechanism control P.C.B.

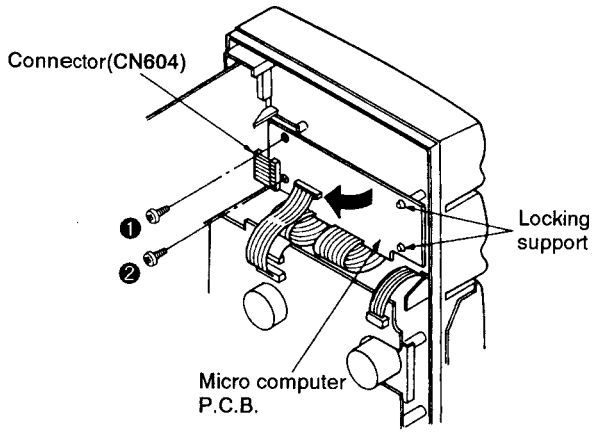


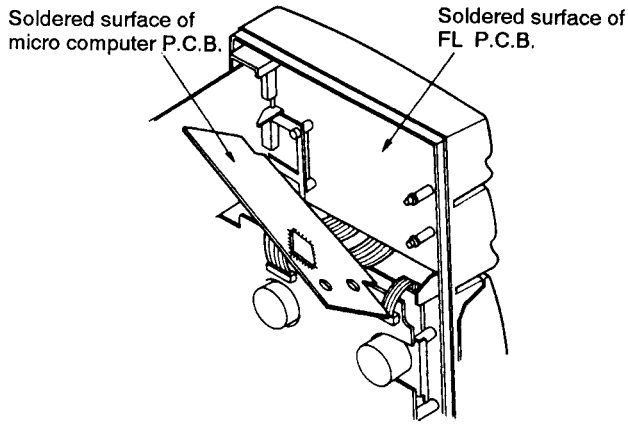
4. Reinstall the front panel ass'y to the unit and connect the flat cable(CN103, CN505) and the connector(CN604). (For wiring connextion, refre to Procedure 2 "Removal of the front panel ass'y".)
5. Place the mechanism unit sideways as shown above and then connect the flat cable(CN205, CN206).
6. When checking the component side of the mechanism control P.C.B. and replacing the parts, do as shown above.
7. Remove the 2 screws(❼, ❽) and then tilt the P.C.B. in the direction of arrow.



8. When checking the soldered surface of the nec hanism control P.C.B., do as shown above.

Ref.No. 34	Check of the micro computer P.C.B. and FL P.C.B.
Procedure 1→34	

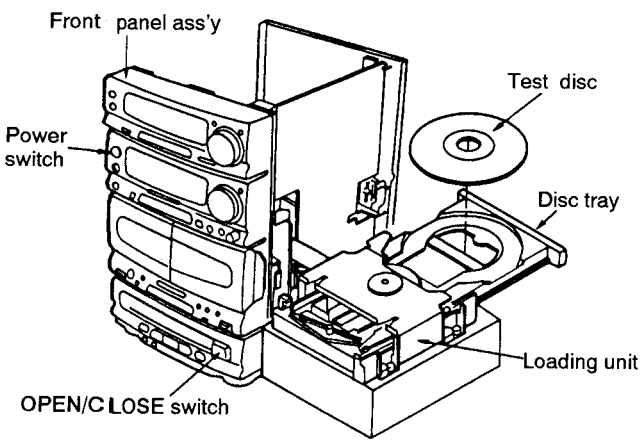


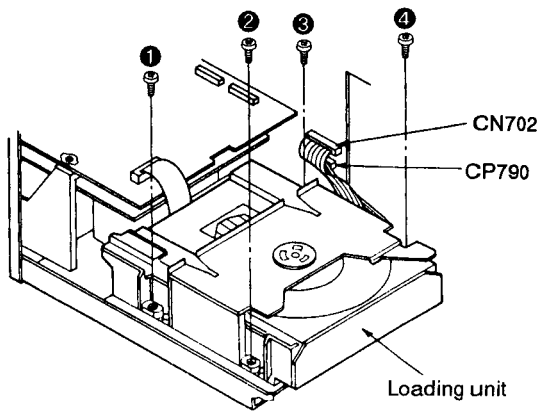


1. Remove the 2 screws(❶, ❷).
2. Release the 2 locking supports.
3. Tilt the micro computer P.C.B. in the direction of arrow.
4. When checking the soldered surface of the P.C.B.(FL and micro computer) and replacing the parts, do as shown above.

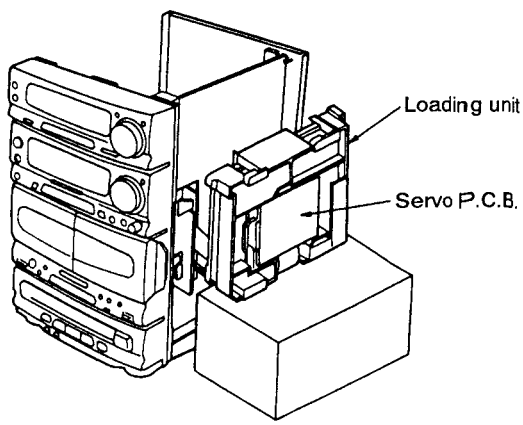
※ Do not connect the connector(CN604).

Ref.No. 35	Check of the servo P.C.B.
Procedure 1→2→35	





1. Remove the flat cable(CN702).
2. Remove the connector(CP790).
3. Remove the 4 screws(❶~❹) and then remove the loading unit..

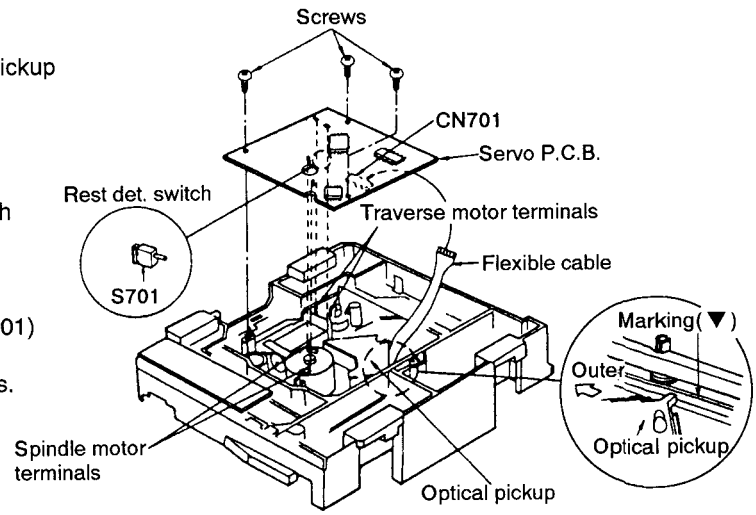


4. Reinstall the front panel ass'y to the unit and connect the flat cable(CN103, CN505) and the connector(CN604). (For wiring connection, refer to Procedure 2 "Removal of the front panel ass'y ".)
5. Place the loading unit sideways as shown above and then connect the Flexible cable(CN702) and connector(CN790).
6. Turn on the power switch and push the OPEN/CLOSE button to open the disc tray.
7. Set the test disc on the disc tray and then push the OPEN/CLOSE button to close the disc tray.
8. Place the loading unit vertically.
9. When checking the soldered surface of the servo P.C.B., do as shown right.

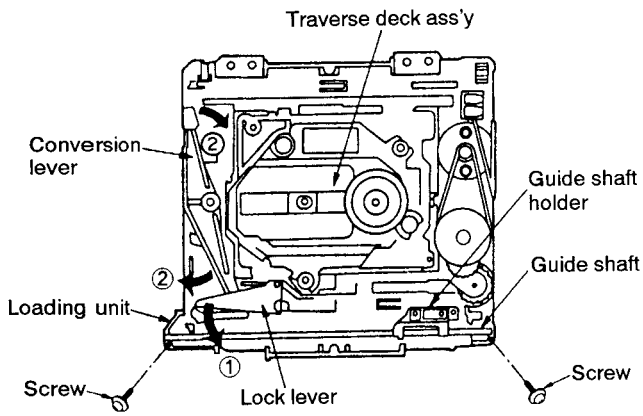
■ INSTALLING SERVO P.C.B.

1. Before installing the servo P.C.B., move the optical pickup toward the outer edge from the mark "▲".
   (Otherwise, the rest switch(S701) mounted on the servo P.C.B. may be damaged.)
2. Connect the flexible cable to the connector(CN701).
3. Install the servo P.C.B. in the traverse deck ass'y with the 3 screws.
4. Solder the 2 terminals of the traverse motor and the 2 terminals of the spindle motor.

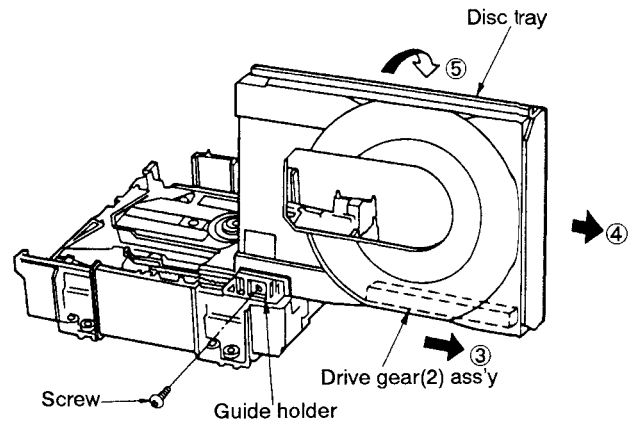
Note: Connect the flexible cable to the connector(CN701) firmly.
Tighten the screws before soldering the terminals.



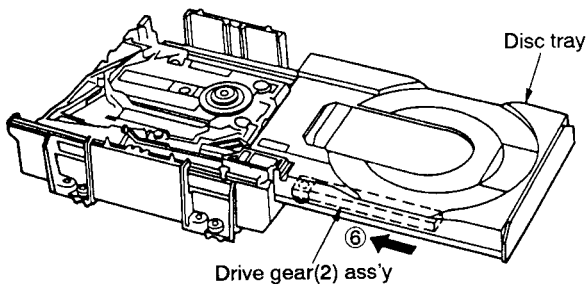
■ INSTALLING DISC TRAY



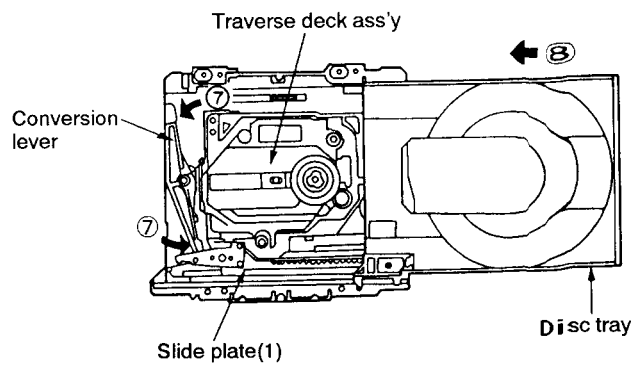
1. Move lock lever in the direction of arrow ① and conversion lever in the direction of arrow ②.
   (Traverse deck ass'y rises.)
2. Install the guide shaft and guide shaft holder on the loading unit.



3. Install the disc tray on the guide shaft holder with the screw as shown above.
4. Slide the drive gear(2) ass'y fully in the direction of arrow ③.
5. Slide the disc tray fully in the direction of arrow ④.
6. Lay the disc tray down in the direction of arrow ⑤.



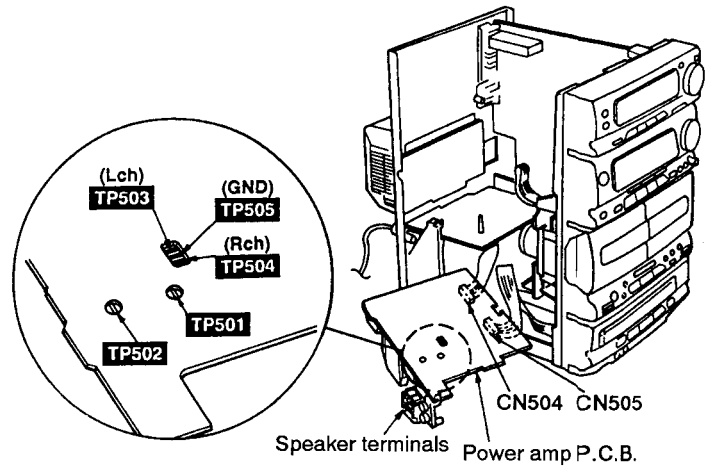
7. Slide the drive gear(2) ass'y in the direction of arrow ⑥.
8. Hold the disc tray and slide the under tray fully the direction of arrow ⑥.
   (Slide but very little and the loading gear is engaged with drive gear(2) ass'y.)



9. Slide the conversion lever fully in the direction of arrow ⑦, and the drive gear(2) ass'y engages with the slide plate(1).
   (The traverse deck ass'y is lowered.)
10. Slide the disc tray in the direction of arrow ⑧

■ CHECK OF THE POWER AMP P.C.B.

Procedure 1. Perform the procedures 1~5 on disassembly instructions. Skip the procedures 2~4.
Also, the connector CN504 is allowed to connect to the flat cable.
Procedure 2. Remove the 2 connectors(CN501, CN502) from the main P.C.B., and then place the power amp P.C.B. as shown right.
Procedure 3. Connect jumper wire vetween TP501 and TP502 on the power amp P.C.B.
Procedure 4. Apply an AF signal to the following test points by using an AF OSC.
(Example: 1kHz signal)
TP503 • • • • Lch
TP505 • • • • GND(signal GND)
TP504 • • • • Rch
Procedure 5. Connect speaker terminal to the speaker unit and be sure that both Lch and Rch speakers output the signal.
Procedure 6. Connect the AC power cord to turn on the power.
Procedure 7. In case that speaker terminals do not send out a signal, the power amp P.C.B. may be out of order. So, check the P.C.B. as shown right.



■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:
• No sound is heard when the power is turned on.
• Sound stops during a performance.
The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:
1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

Disconnect AC power, Discharge both Power Supply Capacitors C530, C541 and C542 through a 10Ω, 5W resistor to ground.
DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may distroy solid state devices.
After repairs are completed, restore power gradually using a variac, to avoid overcurrent.
Current consumption at 50Hz/60Hz in NO SIGNAL mode should be shown below with respect to supply voltage AC 230V/240V/ 110−127V/220−240V.

Power supply voltage	AC 230V		AC 240V		AC 110−127V		AC 220- 240V	
Consumed current 50/60Hz	50Hz	104~216mA	50Hz	109~228mA	50Hz	207~430mA	50Hz	104~216mA
	60Hz	83~173mA	60Hz	87~182mA	60Hz	166~344mA	60Hz	83~173mA

■ MEASUREMENTS AND ADJUSTMENTS

- **Tuner section**

Control positions and equipment used

- FM signal generator (FM-SG)
- Stereo modulator
- Distortion analyser
- DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100μH)
- Resistor (100kΩ)
- Dummy ANT (75Ω)

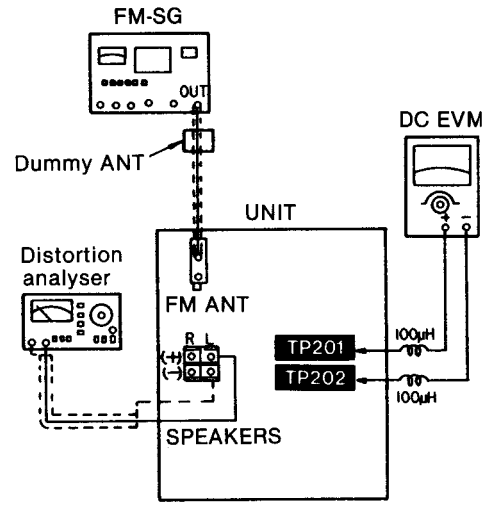
Note: For L2 (MW/LW ANT and OSC coil), Z2 (MW/LW-IFT) they are supplied as adjusted parts. So, do not turn the cores of the parts.
If is not necessary to adjust the AM (MW/LW) circuit.

FM OFFSET VOLTAGE AND MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" mode.
3. Set the radio frequency display and signal generator to **100.10MHz**.
4. Apply a signal (100.10±0.001MHz 60dB, Modulation frequency: 1kHz, Modulation: 100%) through the FM-SG (FM-SG output=72dB at Z_0=75Ω).
5. Adjust the core **T1** so that the voltage measured in signal mode is **0mV (0±20mV)** in 300mV range.
6. Adjust **T2** so that the distortion factor or L-CH and R-CH is minimized.
7. Repeat steps 4 and 5.
8. Make sure that the distortion factors of L-CH and R-CH are nearly the same with each other to minimum.

Note: The adjusting screwdriver used should be made of resin.

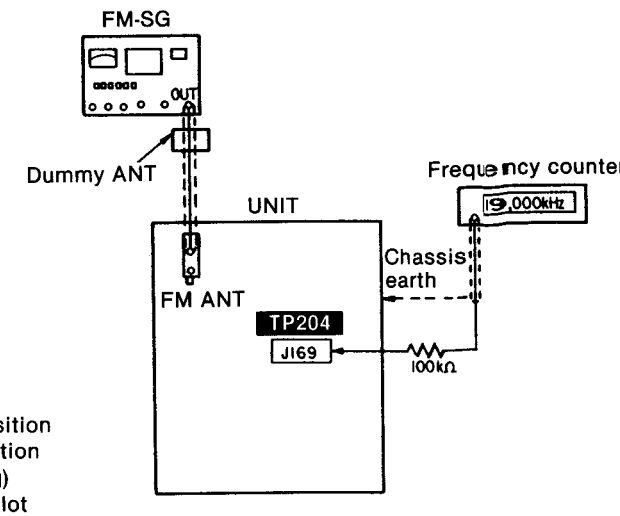
FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency 1kHz
Output level 72dB



FM MPX VCO ADJUSTMENT

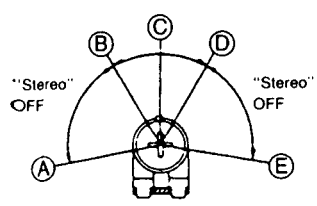
1. Test equipment connection is shown in figure.
2. Set the unit to "**stereo**" position.
3. Set the radio frequency display and signal generator to **100.10MHz**.
4. Apply a signal (100.10±0.005MHz 60dB, Modulation: 0%) through the FM-SG (FM-SG output=72dB at Z_0 =75Ω).
5. Adjust **VR301** for **19kHz±30Hz** on frequency counter reading.

FM SIGNAL GENERATOR CONDITION
Modulation ..... 0% (Non-modulation)
Output level 72dB



USING ALTERNATE SYSTEM

1. Receive the stereo broadcast.
2. Adjust **VR1** until stereo indicator lights up. Fix the arm of **VR1** as shown in figure.



VR1

Ⓐ−Ⓑ,
Ⓓ−Ⓔ .... "Stereo" OFF position
Ⓑ−Ⓓ .... "Stereo" ON position (Indicator lighting)
Ⓒ ..... Adjust point of pilot circuit

• Cassette deck section

• Measurement Condition

- Rec. level control; Maximum
- Reverse-mode selector switch; ⇄
- Edit-recording tape-speed selector; NORMAL
- Timer-recording switch; Off
- Dolby NR switch; Off
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (68±9°F)

• Measuring instrument

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- ATT (Attenuator)
- DC voltmeter
- Resistor (600Ω)

• Test tape

- Head azimuth adjustment (8kHz, −20dB); QZZCFM
- Tape speed adjustment (3kHz, −10dB); QZZCWAT
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, −20dB); QZZCFM
- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment Normal reference blank tape; QZZCRA
  CrO_2 reference blank tape; OZZCRX
  Metal reference blank tape; QZZCRZ

HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Playback the azimuth adjustment portion (8kHz, −20dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the output of the R-CH are maximized.
2. Perform the same adjustment in the play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

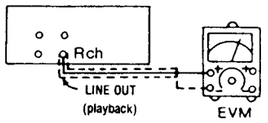


Fig. 1

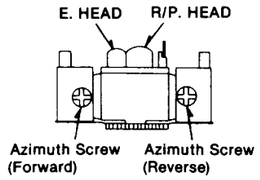


Fig. 2

TAPE SPEED ADJUSTMENT (DECK 1/2)

Normal speed

1. Shift the edit-recording tape-speed selector to "**NORMAL**".
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust Deck 1=**VR201** and Deck 2=**VR202** so that the output is within the standard value.

Standard value: 3000±15Hz (NORMAL speed)

High speed [Set the unit to forward (FWD) mode.]

4. Push the edit speed button (SPEED). This will set the high speed mode.
5. Playback the middle portion on the test tape (QZZCWAT).
6. At that time, check if the output from DECK 1 is within the standard value.

Standard value: 5000±600Hz (HIGH speed)

7. Adjust **VR203** so that the output frequency of DECK 2 is within ±**30Hz** of the value of the output frequency of DECK 1.

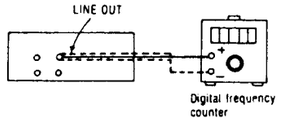


Fig. 3

PLAYBACK GAIN ADJUSTMENT (DECK 1/2)

1. Playback the gain adjusted portion (315Hz, 0dB) of the test tape (QZZCFM).
2. Adjust Deck 2=**VR103** (L-CH) [[**VR104** (R-CH)]] and Deck 1=**VR101** (L-CH) [[**VR102** (R-CH)]] so that the output is within the standard value.

Standard value: 400mV±0.5dB

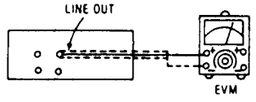


Fig. 4

PLAYBACK FREQUENCY RESPONSE (DECK 1/2)

1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, −20dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in **Fig. 6** for both L-CH and R-CH.

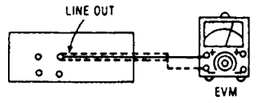


Fig. 5

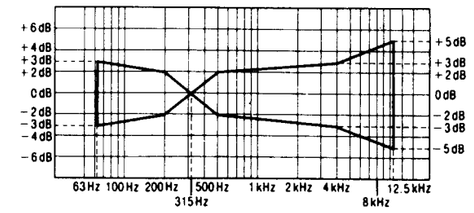


Fig. 6

ERASE CURRENT CONFIRMATION (DECK 2)

1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Assure so that the output between **TP12** and **TP11** is within the standard value.

Standard value: 190±25mV

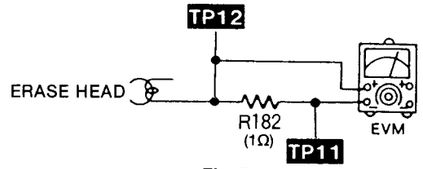


Fig. 7

OVERALL FREQUENCY RESPONSE (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1kHz, −24dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in **Fig. 8** in comparison to the reference frequency (1kHz).
6. Repeat steps 2~5 above using the CrO_2 tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
7. Assure that the level is within the range shown in **Fig. 9**.

Normal Overall frequency response chart (NR OUT)

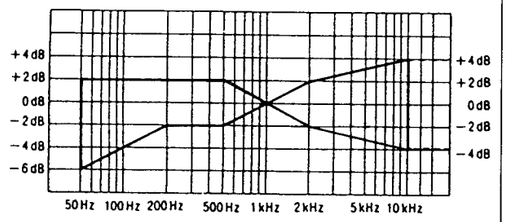


Fig. 8

CrO_2 Metal Overall frequency response chart (NR OUT)

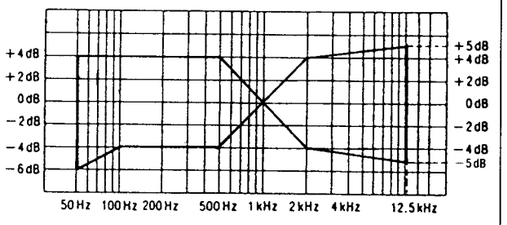


Fig. 9

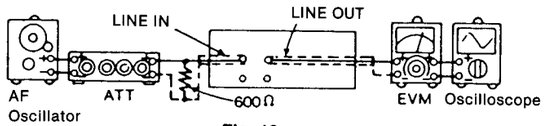


Fig. 10

OVERALL GAIN CONFIRMATION (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1kHz, −19dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.

Standard value: 0.4V±0.5dB

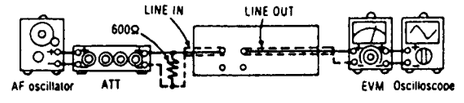


Fig. 11

• Adjustme

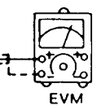
〈Tuner sec

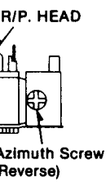
〈Cassette d

re roller are clean
0±5°C (68±9°F)

Hz, 0dB); QZZCFM
erall gain
lank tape;

CRX
ZCRZ





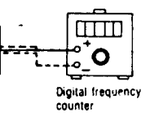


Fig. 3

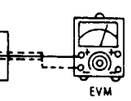


Fig. 4

PLAYBACK FREQUENCY RESPONSE (DECK 1/2)

1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, −20dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in **Fig. 6** for both L-CH and R-CH.

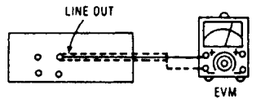


Fig. 5

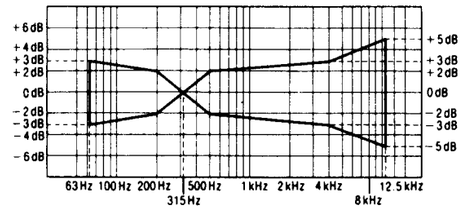


Fig. 6

ERASE CURRENT CONFIRMATION (DECK 2)

1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Assure so that the output between **TP12** and **TP11** is within the standard value.

Standard value: 190±25mV

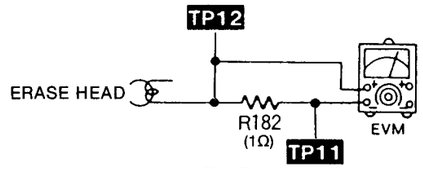


Fig. 7

OVERALL FREQUENCY RESPONSE (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1kHz, −24dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in **Fig. 8** in comparison to the reference frequency (1kHz).
6. Repeat steps 2~5 above using the CrO_2 tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
7. Assure that the level is within the range shown in **Fig. 9**.

Normal Overall frequency response chart (NR OUT)

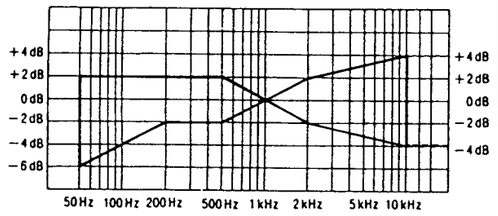


Fig. 8

CrO_2 Metal Overall frequency response chart (NR OUT)

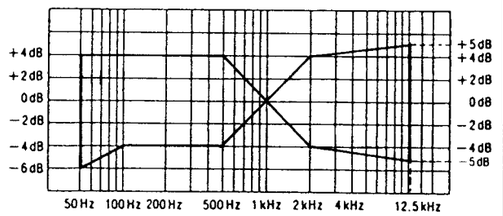


Fig. 9

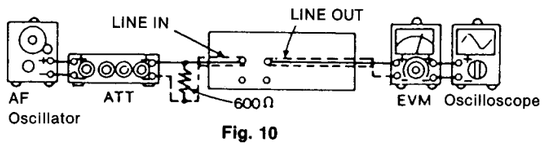


Fig. 10

OVERALL GAIN CONFIRMATION (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1kHz, −19dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.

Standard value: 0.4V±0.5dB

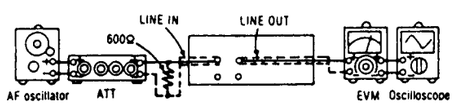
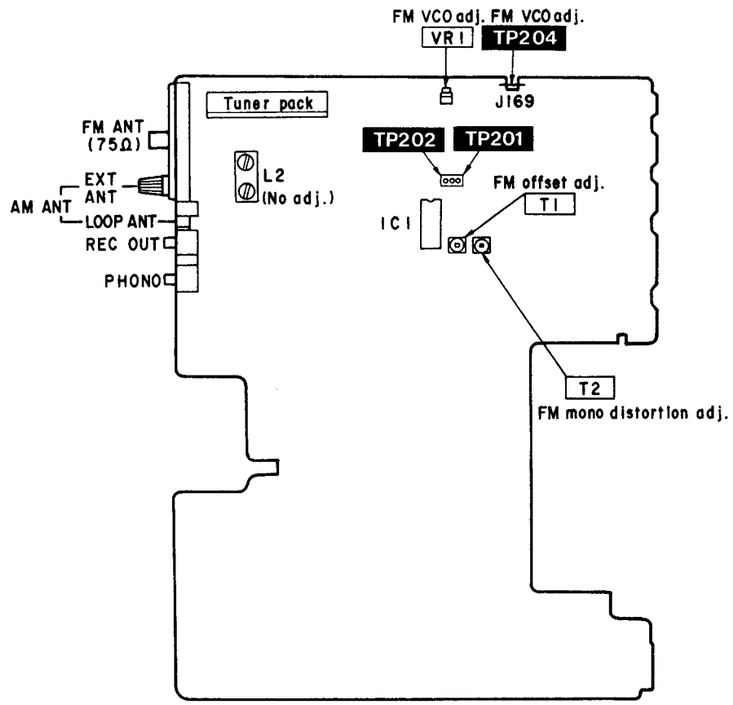


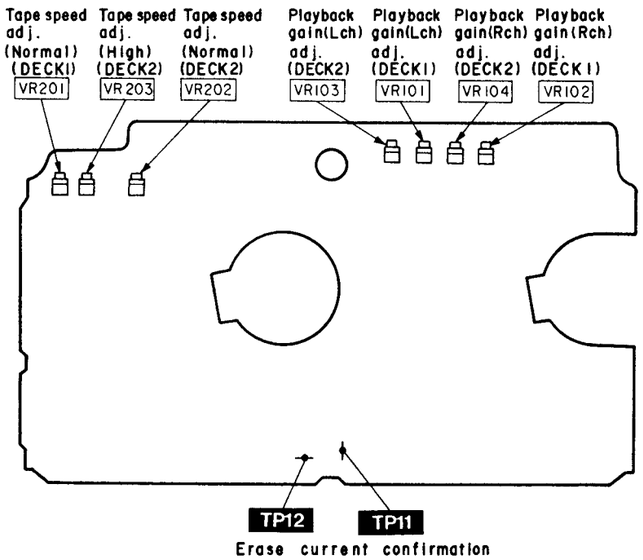
Fig. 11

• Adjustment points

〈Tuner section〉



〈Cassette deck section〉


Tape speed adj. (Normal) (DECK1) VR201
Tape speed adj. (High) (DECK2) VR203
Tape speed adj. (Normal) (DECK2) VR202
Playback gain(Lch) adj. (DECK2) VR103
Playback gain(Lch) adj. (DECK1) VR101
Playback gain(Rch) adj. (DECK2) VR104
Playback gain(Rch) adj. (DECK1) VR102
TP12
TP11
Erase current confirmation

• Compact disc player section

Warning: This product uses a laser diode. Refer to caution statements on page 3.

ACHTUNG: • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Measuring Instruments and Special Tools

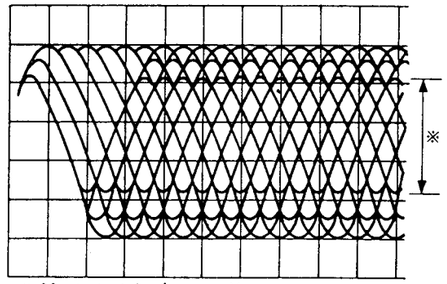
* Test discs
1. Playability test disc (SZZP1054C)
2. Uneven test disc (SZZP1056C)

* Musical program disc (ordinary)
* Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT. trigger and 1:1 probe).
* Allen wrench (M2.0) (SZZP1101C)
* Lock paint (RZZ0L01)

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability if the traverse deck has not been replaced.

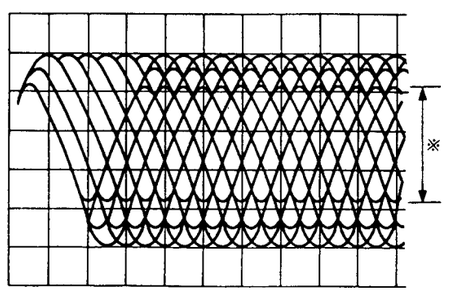
1. Connect the oscilloscope's CH. 1 probe across TJ701 (RF) (+) and TJ702 (VREF) (−) on the servo P.C.B.
   Oscillosocpe setting: VOLT 200mV
   SWEEP..... 0.5µs.
   Input coupling ..... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
   (Playing any other track will prevent, the HEX screws from being accessed.)
3. Leave the player in play mode and place the traverse deck as shown under Ref. No. 35 on page 23.
4. Alternately adjust the HEX screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
   (Refer to Fig. 2 on page 31)
5. After completing the adjustment, lock the HEX screws with lock paint (RZZ0L01).



※ Most stretched eye pattern.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across TJ701 (RF) (+) and TJ702 (VREF) (−) on the servo P.C.B.
   Oscillosocpe setting: VOLT 200mV
   SWEEP..... 0.5µs.
   Input coupling ..... AC
2. Switch the player power **ON**, and play the 1kHz (track 1) on the test disc (SZZP1054C).
3. Adjust **VR701** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched. (Refer to Fig. 1 on page 31)



※ Most stretched eye pattern.

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* **Checking Manual Search**
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* **Checking Playability**
1. Play the 0.7mm black dot and the 0.7mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

• Adjustment points

〈**Compact disc player section**〉

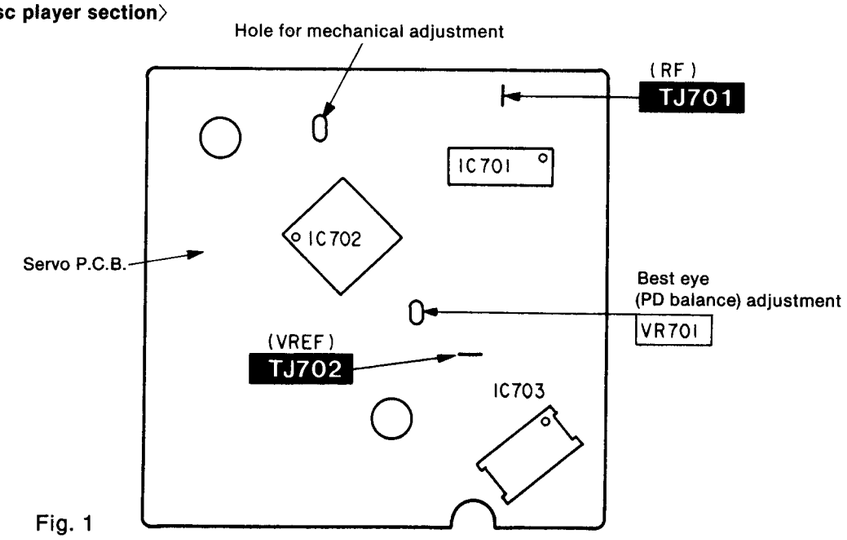


Fig. 1

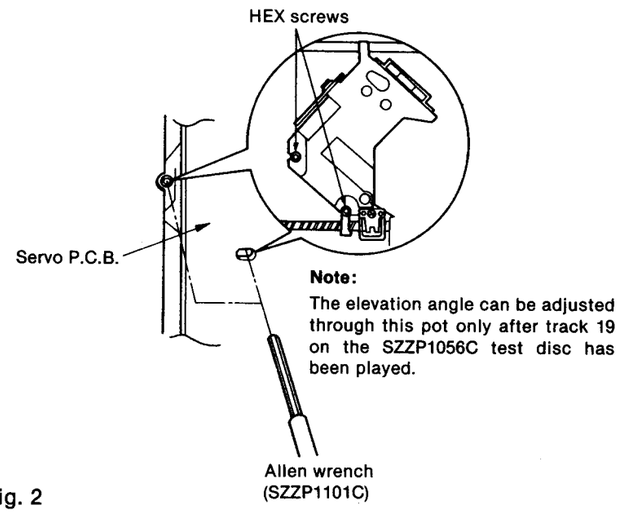

HEX screws
Servo P.C.B.
Note:
The elevation angle can be adjusted through this pot only after track 19 on the SZZP1056C test disc has been played.
Allen wrench
(SZZP1101C)

Fig. 2

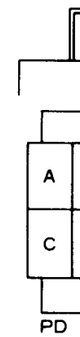
■ NEW

This model e
points have b

1. Reduced ope
   Loading mecha
2. Reduced acc
   [(old) 2.9 seco
   Change of trav

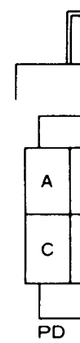
DIGITAL S

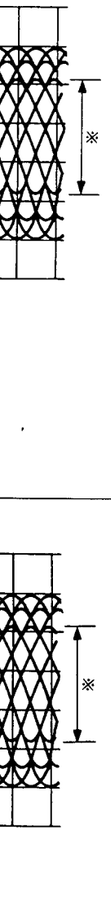
Only 1 VR requ



DIGITAL S

Only 1 VR requ





(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

*** Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

*** Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*** Checking Playability**

1. Play the 0.7mm black dot and the 0.7mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

• Adjustment points

〈**Compact disc player section**〉

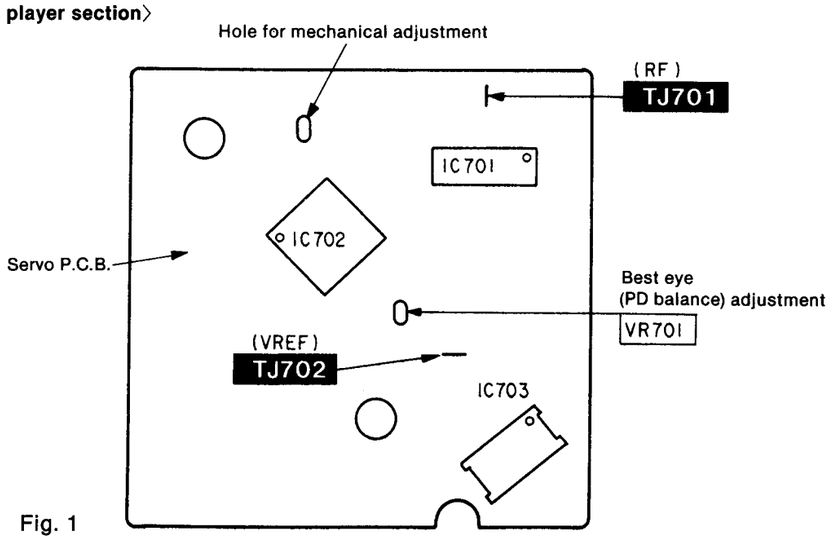


Fig. 1

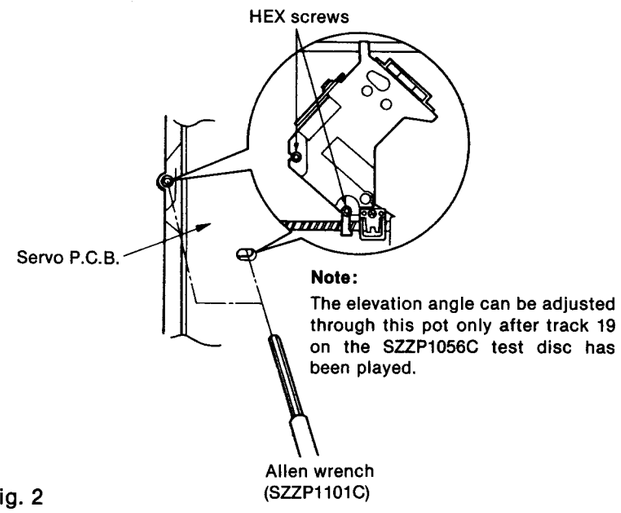

HEX screws
Servo P.C.B.
Note:
The elevation angle can be adjusted through this pot only after track 19 on the SZZP1056C test disc has been played.
Allen wrench
(SZZP1101C)

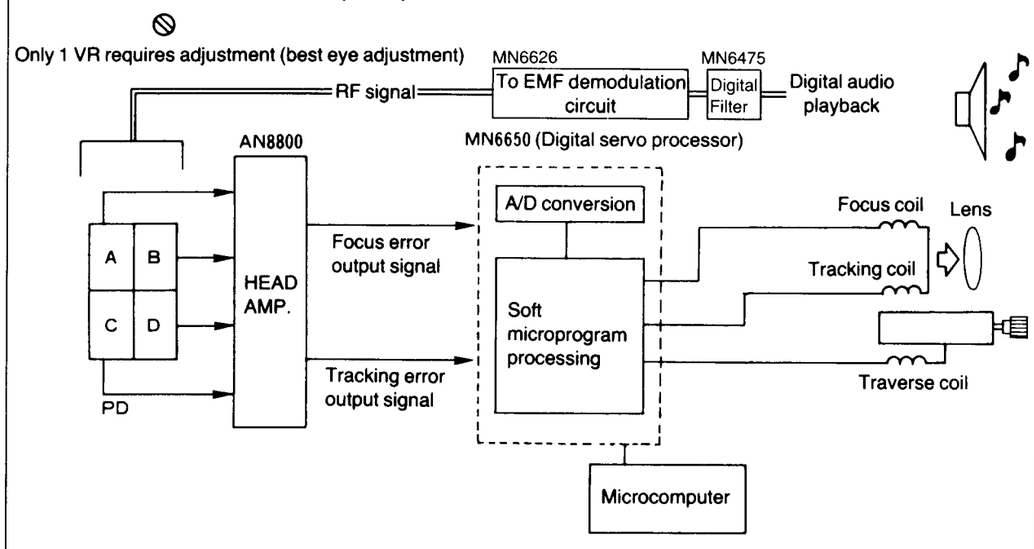
Fig. 2

■ NEW DIGITAL SERVO CIRCUIT

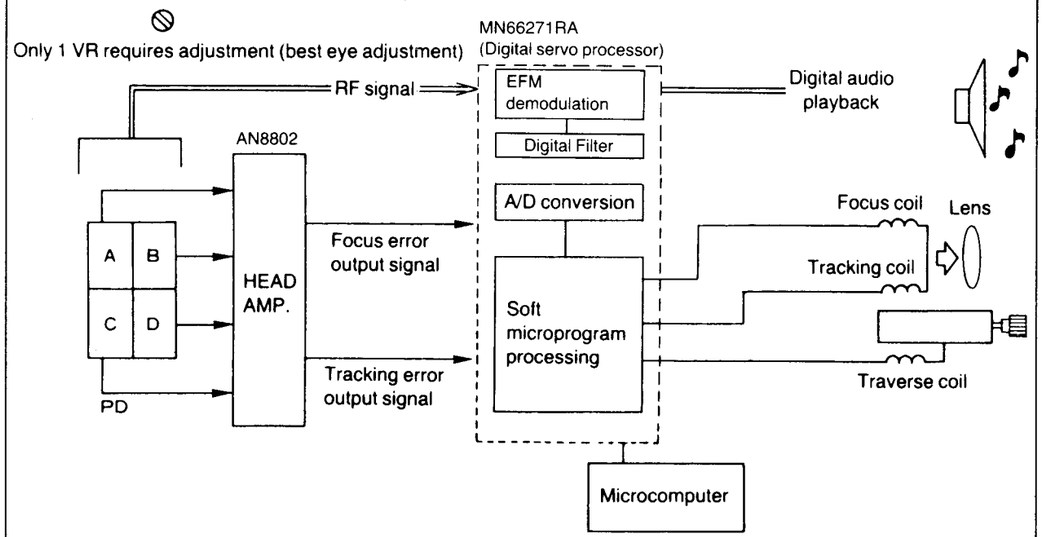
This model employs a new digital servo circuit. Compared to the old digital servo circuit, the following points have been improved.

1. **Reduced operated noise**
   Loading mechanism 2-level speed reducer
2. **Reduced access time**
   [(old) 2.9 seconds→(new) 1.9 seconds]
   Change of traverse gear
3. **Improved vibration resistance**
   Rubber and spring 2-level floating mechanism
   [fo=50 Hz (old)→20 Hz (new)]
4. **Reduced number of parts**
   Use of a single super IC tip
   3 chips (MN6626, MN6650, MN6475) are reduced to a single chip (MN66271RA)

DIGITAL SERVO SYSTEM (OLD)



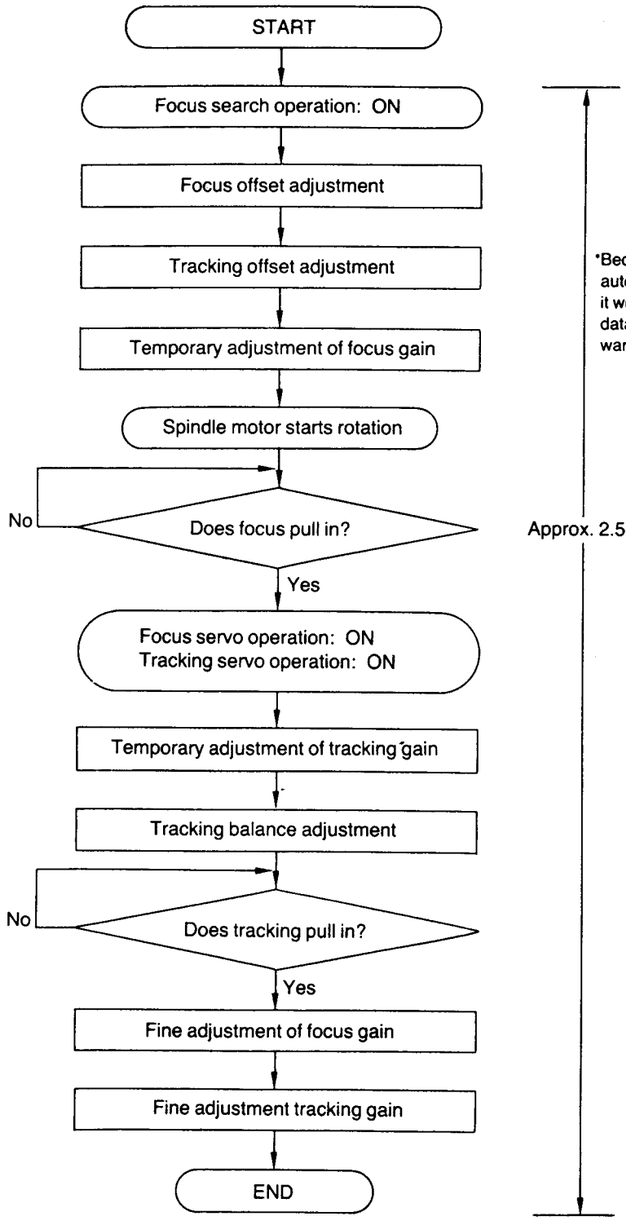
DIGITAL SERVO SYSTEM (NEW)



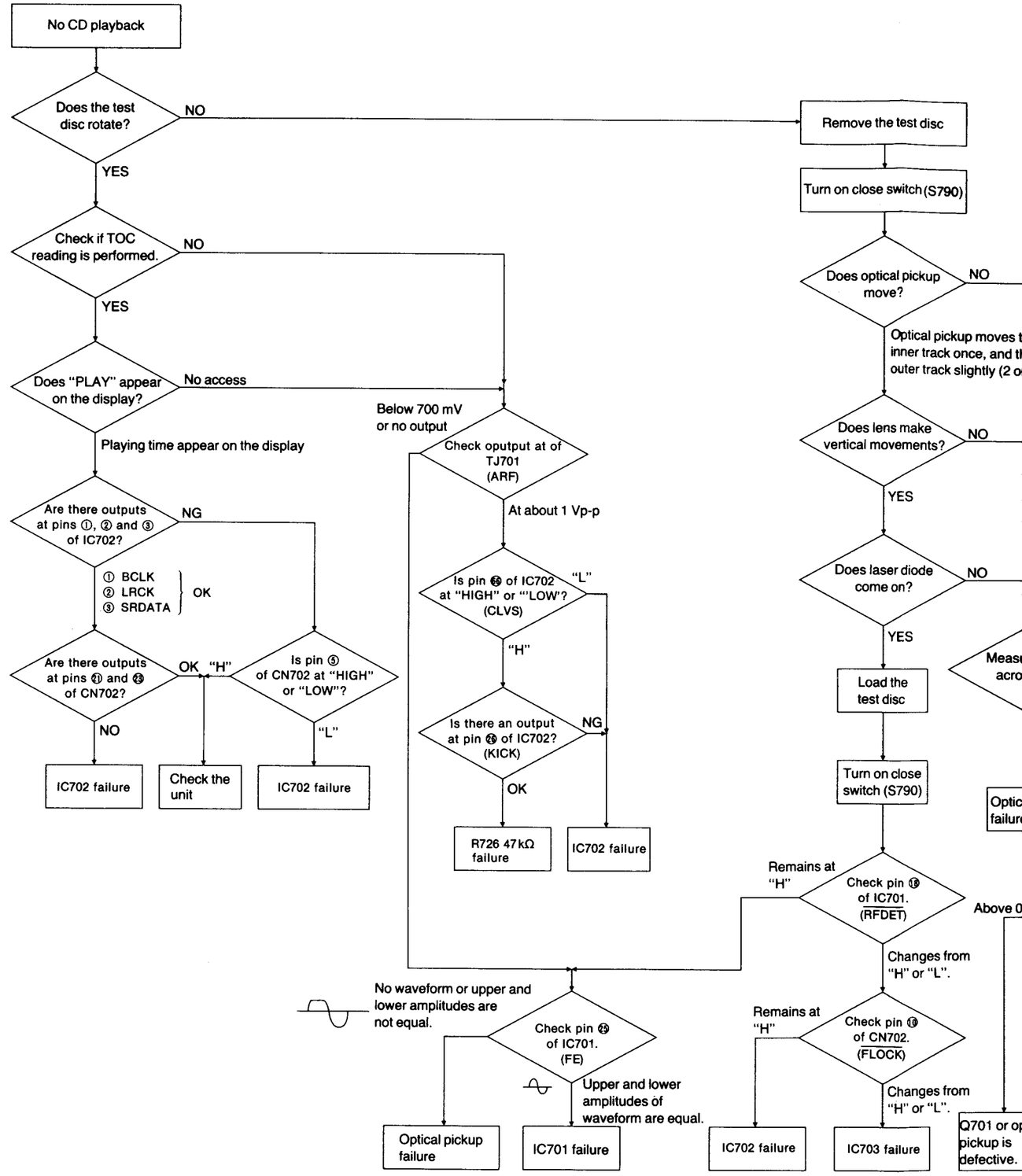
5. The servo processor IC (MN66271RA) of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted manually in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform the above-mentioned electrical adjustments. The unit optimizes the servo for each loaded disc.
[You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of automatic adjustments.

• Flow chart on automatic adjustment sequence


START
Focus search operation: ON
Focus offset adjustment
Tracking offset adjustment
Temporary adjustment of focus gain
Spindle motor starts rotation
No
Does focus pull in?
Yes
Focus servo operation: ON
Tracking servo operation: ON
Temporary adjustment of tracking gain
Tracking balance adjustment
No
Does tracking pull in?
Yes
Fine adjustment of focus gain
Fine adjustment tracking gain
END
Approx. 2.5 sec.
*Because the microcomputer precisely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric one or its surface is warped.

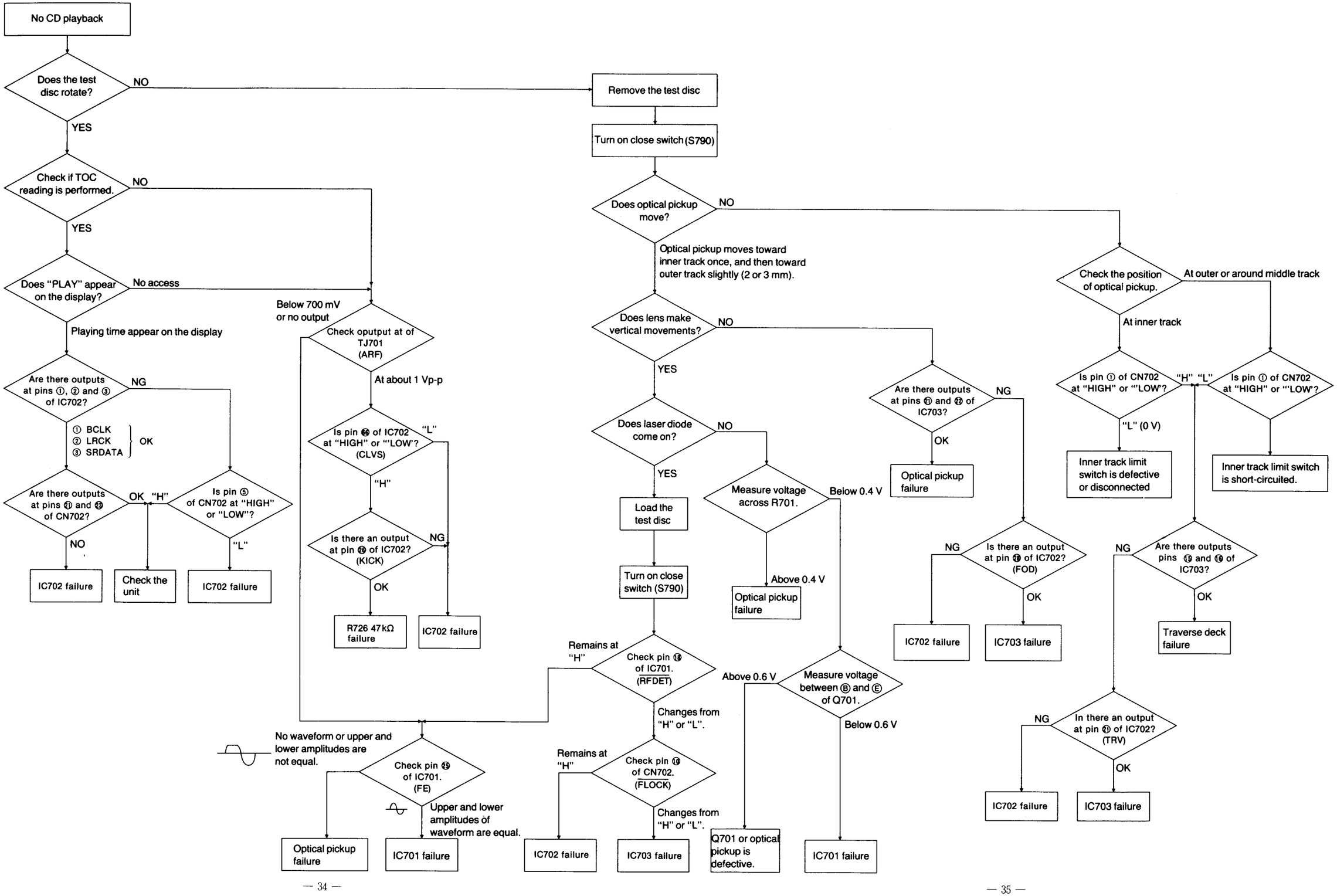
■ TROUBLESHOOTING GUIDE



tically performs the
o circuit:
Therefore, you do not
each loaded disc.

sely performs
n the flow chart,
sh reading TOC
or its surface is

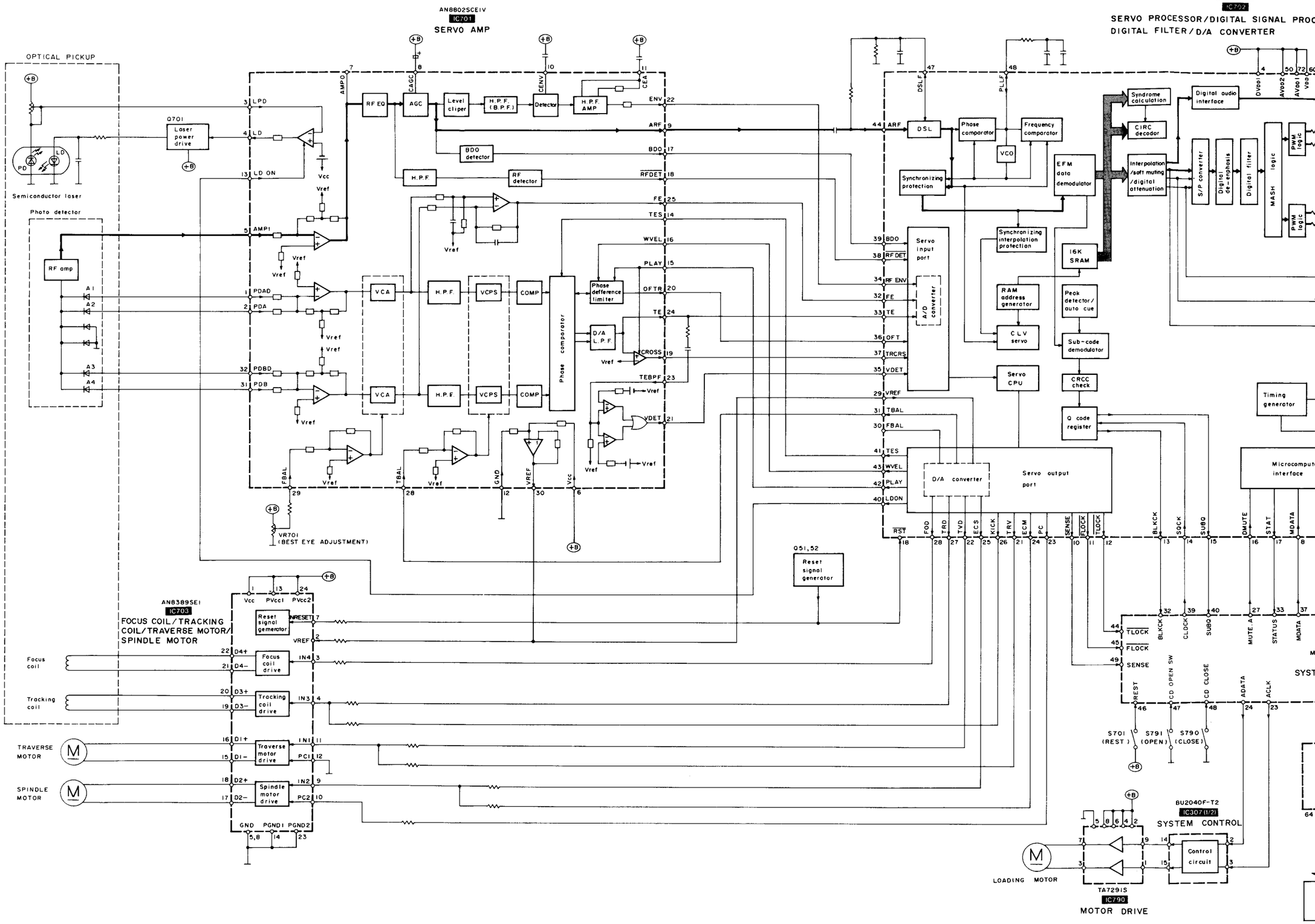
■ TROUBLESHOOTING GUIDE


No CD playback
Does the test disc rotate?
NO
YES
Check if TOC reading is performed.
NO
YES
Does "PLAY" appear on the display?
No access
Playing time appear on the display
Are there outputs at pins ①, ② and ③ of IC702?
NG
① BCLK
② LRCK
③ SRDATA
OK
Are there outputs at pins ㉑ and ㉓ of CN702?
OK
"H"
Is pin ⑤ of CN702 at "HIGH" or "LOW"?
NO
"L"
IC702 failure
Check the unit
IC702 failure
Below 700 mV or no output
Check oputput at of TJ701 (ARF)
At about 1 Vp-p
Is pin ⑯ of IC702 at "HIGH" or "LOW"? (CLVS)
"L"
"H"
Is there an output at pin ㉔ of IC702? (KICK)
NG
OK
R726 47kΩ failure
IC702 failure
Remove the test disc
Turn on close switch (S790)
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm).
Does lens make vertical movements?
NO
YES
Does laser diode come on?
NO
YES
Load the test disc
Turn on close switch (S790)
Measure voltage across R701.
Below 0.4 V
Above 0.4 V
Optical pickup failure
Remains at "H"
Check pin ⑱ of IC701. (RFDET)
Changes from "H" or "L".
Above 0.6 V
Measure voltage between Ⓑ and Ⓔ of Q701.
Below 0.6 V
Q701 or optical pickup is defective.
IC701 failure
No waveform or upper and lower amplitudes are not equal.
Check pin ㉕ of IC701. (FE)
Upper and lower amplitudes of waveform are equal.
Optical pickup failure
IC701 failure
Remains at "H"
Check pin ⑩ of CN702. (FLOCK)
Changes from "H" or "L".
IC702 failure
IC703 failure
Are there outputs at pins ㉑ and ㉒ of IC703?
NG
OK
Optical pickup failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC702 failure
IC703 failure
Check the position of optical pickup.
At outer or around middle track
At inner track
Is pin ① of CN702 at "HIGH" or "LOW"?
"H" "L"
Is pin ① of CN702 at "HIGH" or "LOW"?
"L" (0 V)
Inner track limit switch is defective or disconnected
Inner track limit switch is short-circuited.
Are there outputs pins ⑬ and ⑯ of IC703?
NG
OK
Traverse deck failure
In there an output at pin ㉑ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure

SA-CH350 SA-CH350

■ BLOCK DIAGRAM

- **Compact disc player section**

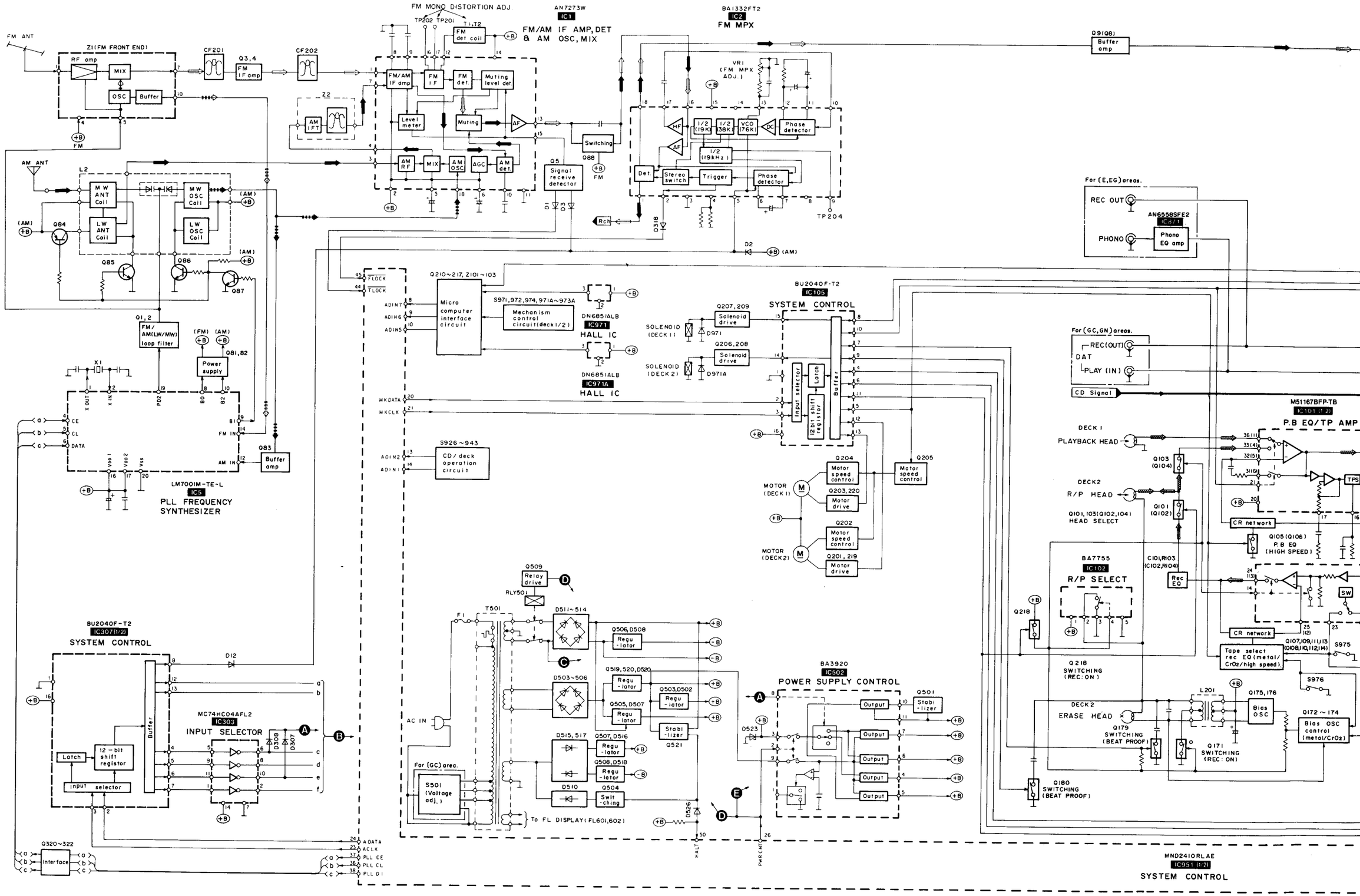


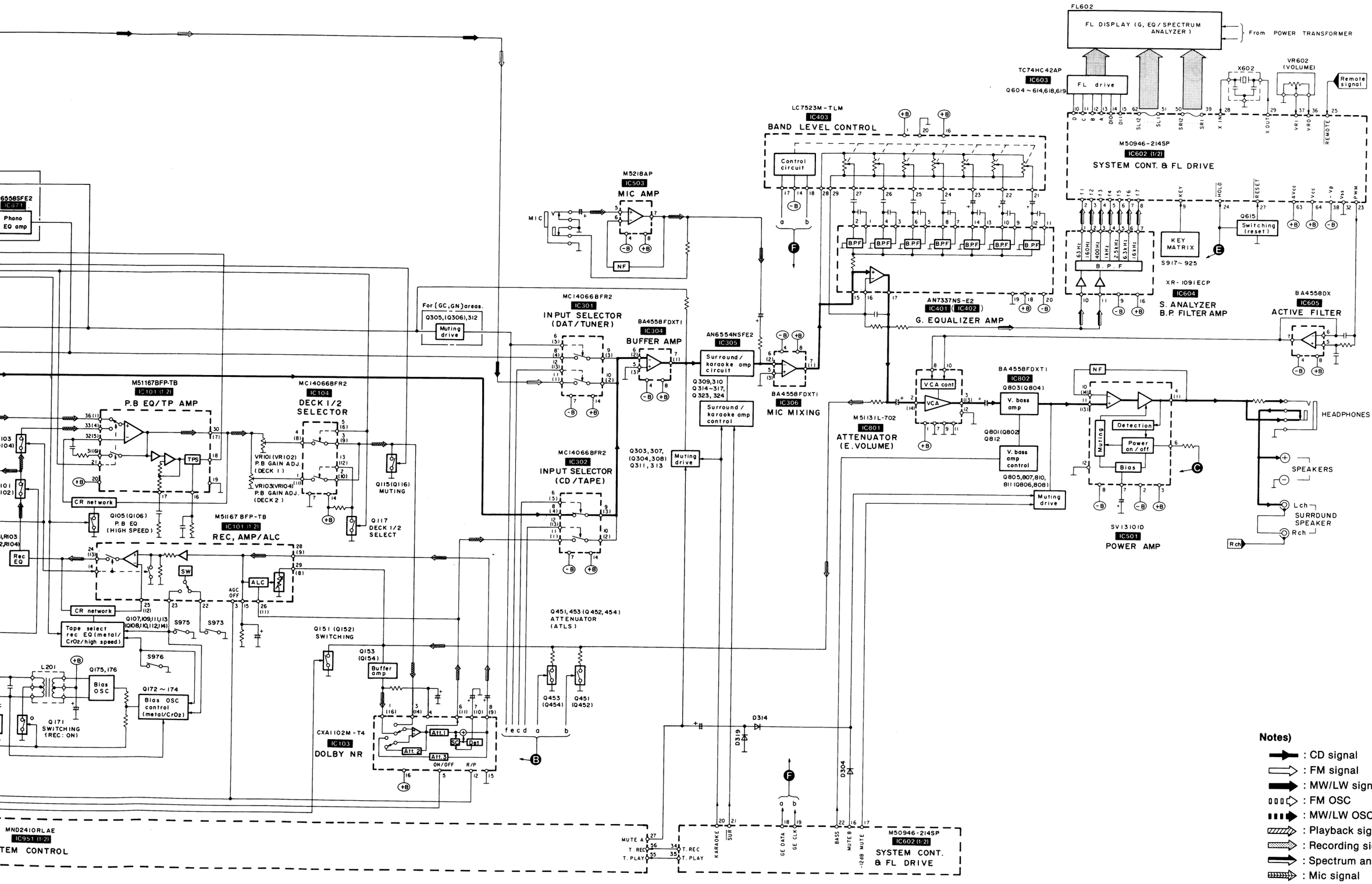
AN8802SCE1V
IC701
SERVO AMP

MN6627IRA
IC702
SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER/D/A CONVERTER

RF EQ
AGC
Level cliper
H.P.F. (B.P.F.)
Detector
H.P.F. AMP
BDO detector
H.P.F.
RF detector
Vref
VCA
H.P.F.
VCPS
COMP
Phase comparator
Phase defference limiter
D/A L.P.F.
TCROSS
TEBPF
VDET
TBAL
GND
VREF
Vcc
Reset signal generator
Q51,52
DSL
Phase comparator
Frequency comparator
VCO
Synchronizing protection
EFM data demodulator
Syndrome calculation
CIRC decodor
Interpolation /soft muting /digital attenuation
Digital audio interface
S/P converter
Digital de-emphasis
Digital filter
MASH logic
PWM logic
Output (L ch)
Output (R ch)
Synchronizing interpolation protection
16K SRAM
RAM address generator
Peak detector/ auto cue
C L V servo
Sub-code demodulator
Servo CPU
CRCC check
Q code register
Servo input port
A/D converter
Servo output port
D/A converter
Timing generator
X701
Microcomputer interface
Remocon signal
VR601 (AI JOG)
X951
X952
Z901
Remote control receiver
S901~916
KEY MATRIX
Q951
Reset signal generator
D601
MND2410RLAE
IC951(1/2)
SYSTEM CONTROL
S701 (REST)
S791 (OPEN)
S790 (CLOSE)
M50754-186SP
IC601
FL DRIVE
FL drive
Q601,602
Q616,617
X601
FL DISPLAY (CD/CLOCK/TUNER/DECK)
From POWER TRANSFORMER
BU2040F-T2
IC307(1/2)
SYSTEM CONTROL
Control circuit
LOADING MOTOR
TA7291S
IC790
MOTOR DRIVE

• Tuner/Amplifier/Cassette deck section





Notes)

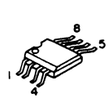
- : CD signal
- : FM signal
- : MW/LW signal
- : FM OSC
- : MW/LW OSC
- : Playback signal
- : Recording signal
- : Spectrum analyzer signal
- : Mic signal

( ) indicates pin No. of right channel.

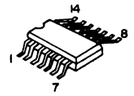
• Tu

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

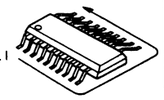
BA4558FDXT1



MC74HC04AFL2

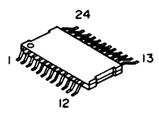


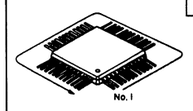
No. 1



MC14066BFR2	14 Pin	LM7001M-TE-L	20 Pin	M51167BFP-TB	36 Pin
AN6554NSFE2	14 Pin	AN7337NS-E2	20 Pin		
BU2040F-T2	16 Pin	AN6558SFE2	8 Pin		
CXA1102M-T4	16 Pin	LC7523M-TLM	30 Pin		
BA1332FT2	18 Pin	AN8802SCE1V	32 Pin		

AN8389SE1

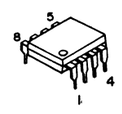




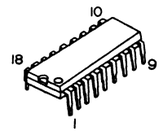
No. 1

MN66271RA	80 Pin
MND2410RLAE	100 Pin

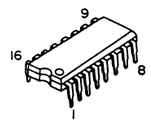
M5218AP

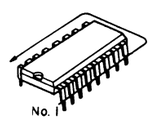


AN7273W



TC74HC42AP

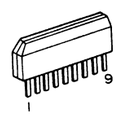




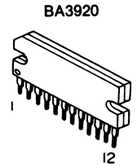
No. 1

BA4558DX	8 Pin
XR-1091ECP	16 Pin
M50754-186SP	64 Pin
M50946-214SP	64 Pin

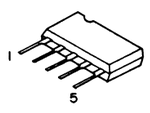
TA7291S



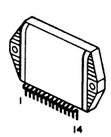
BA3920



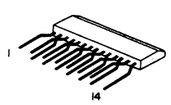
BA7755



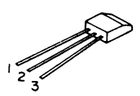
SVI3101D



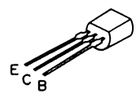
M51131L-702



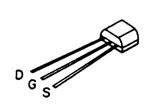
DN6851ALB



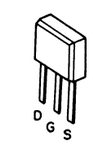
2SD965RTA
KSB564ACYGTA
KSD471ACYGTA

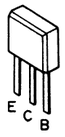


2SK381BCTA
2SK381CDTA



2SJ164PQRTA



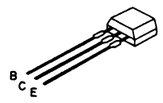


2SA1309AQSTA
2SC2784FETA
2SC2785FETA
2SC2787LTA
2SC3311AQSTA
2SC3311RTA
2SC3312QRSTA

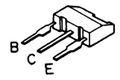
2SD1450STA
2SD1450STTA
2SD1450QRSTA
UN411FTA
UN4111TA
UN4112TA
UN4113TA

UN4114TA
UN4210TA
UN4212TA
UN4213TA
UN4215TA

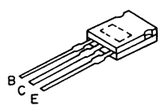
2SC1740SLNET
DTB123YSTP



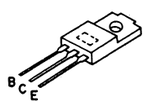
2SD1862QRTV6



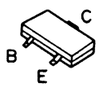
2SB1357EFTA
2SD2137PQTA

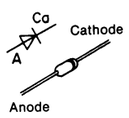


2SB1185EF
2SD1762EF



2SB709STW

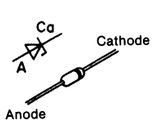




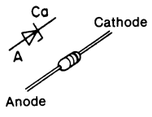
Cathode
Anode

1SS254TA
1SS291TA
MA167ATA
RVD1SS133TA

RVDMTZ4R7BTA

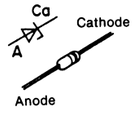


Cathode
Anode



Cathode
Anode

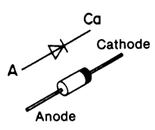
MA4030MTA
MA4043MTA
MA4047MTA
MA4051LTA
MA4056MTA
MA4062MTA
MA4062HTA
MA4082MTA



Cathode
Anode

MA4120MTA
MA4150MTA
MA4270MTA
MA4300MTA
MA4150LTA

GP15GLF
RL1N4003N02



Cathode
Anode

■ SCHEMATIC DIAGRAM (Parts list on pages 82~85, 96~100.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

- **S501** : Voltage adj. switch in "240V" position. For (GC) area only.
- **S701** : Rest detector in "OFF" position. (It turns "ON" when optical pickup comes to innermost periphery.)
- **S790** : Disc holder "close" detector switch.
- **S791** : Disc holder "open" detector switch.
- **S901** : Compact disc edit-recording mode select (CD EDIT) switch.
- **S902** : Tuning mode select (TUNING) switch.
- **S903** : FM mode/beat proof (FM MODE/B.P) switch.
- **S904** : Display select (DISPLAY) switch.
- **S905** : Band select (-BAND, -ALLOCATION) switch.
- **S906** : Clock/timer (CLOCK/TIMER) switch.
- **S907** : Set (SET) switch.
- **S908** : Cancel (CANCEL) switch.
- **S909** : Power "STANDBY ⏻ /ON" (POWER, STANDBY /ON) switch.
- **S910** : Sleep timer (SLEEP) switch.
- **S911~913, 916**: Input select switch. [S911: TAPE, S912: TUNER, S913: PHONO (E, EG)/DAT (GC, GN), S916: CD]
- **S914** : Timer recording (REC TIMER) switch.
- **S915** : Timer play (PLAY TIMER) switch.
- **S917** : Karaoke (KARAOKE) switch.
- **S918** : Surround (SURROUND) switch.
- **S919** : V. bass (V. BASS) switch.
- **S920** : Equalizer ON/FLAT (EQ, -ON/FLAT, -DEMO) switch.
- **S921** : Equalizer mode select (-EQ MODE, -FIXED/USER) switch.
- **S922, 923**: Equalizer level-control (EQ LEVEL) switches. [S922: ▼ (DOWN), S923: ▲ (UP)]
- **S924** : Display mode select (DISPLAY, -SPECTRUM, -MODE) switch.
- **S925** : Volume preset (VOL. PRESET) switch.
- **S926** : Reverse mode select (REVERSE MODE) switch.
- **S927** : Tape counter reset (COUNTER RESET) switch.
- **S928** : Dolby noise reduction (DOLBY NR) switch.
- **S929** : Record/record standby (REC PAUSE) switch.
- **S930, 931**: One-touch tape edit (ONE TOUCH TAPE EDIT, NORMAL, HIGH) switches. [S930: NORMAL, S931: HIGH]
- **S932** : Stop (□) switch. (Cassette deck section)
- **S933, S936**: Fast-forward/rewind/tape program sensor (TPS) switches. [S933: ◀◀ (TPS), S936: (TPS) ▶▶]
- **S934** : Reverse-side playback (◁) switch.
- **S935** : Forward-side playback (▷) switch.
- **S937** : Deck 1/deck 2 select (DECK 1/2) switch.
- **S938** : Stop (□) switch. (Compact disc player section)
- **S939** : Play (▷) switch.
- **S940** : Pause (▯▯) switch.
- **S941, 942**: Skip/search (⏮◀◀/◀◀ • ▶▶/▶▶⏭) switches. [S941: ▶▶/▶▶⏭ (F), S942: ⏮◀◀/◀◀ (R)]
- **S943** : Disc tray open/close (▲ OPEN/CLOSE) switch.
- **S971** : Mode switch. (DECK 1)
- **S972** : Half switch. (DECK 1)
- **S973** : CrO_2 (metal) tape switch. (DECK 1)
- **S971A** : Mode switch: (DECK 2)
- **S972A** : Half switch: (DECK 2)
- **S973A** : Reverse record inhibit switch.
- **S974** : Forward record inhibit switch.
- **S975** : CrO_2 tape switch. (DECK 2)
- **S976** : Metal tape switch. (DECK 2)
- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  〈Tuner/Amplifier/Cassette deck section〉
  〈 〉: FM, 「 」: MW, 『 』: TUNER mode,
  [ ]: TAPE 1/2 mode, (( )): Playback (DECK 2),
  《 》: Record (DECK 2), ▭: LW,
  〖 〗: PHONO mode (E, EG)/DAT mode (GC, GN)
  〈Compact disc player section〉
  No mark: STOP
  ( ): Playback (Test disc 1kHz, L+R 0dB)
- Signal line
  ▬▬ : Positive voltage lines
  ⇨ : FM signal
  ▯▯▯⇨ : FM OSC
  ⇛ : Spectrum analyzer signal
  ⇨ : Recording signal
  ▬ ▬ : Negative voltage lines
  ➡ : AM (MW/LW) signal
  ▮▮▮➡ : AM (MW/LW) OSC
  ⇨ : Mic signal
  ⇨ : CD signal
  ⇨ : Playback signal
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- The supply parts number is described alone in the replacement parts.

Part No.	Original Part No.	Supply Part No.
Z901	RCDHC-278-E	RCDHC-278

Caution!

IC and LSI are sensitive to static ellectricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

J MAIN CIRCUIT

Z1 FM FRONT END (ENV17283G1Y)

RF MIX IF OSC

For (E,EG) areas.
For (GC,GN) areas.
JK101 FM ANT (75Ω)
FM ANT JK101 75Ω GND
FM SIGNAL
FM OSC SIGNAL
FM +B LINE
AM (LW/MW) +B LINE

JK101 EXT ANT
AM ANT LOOP ANT
AM(LW/MW) SIGNAL
AM(LW/MW) OSC SIGNAL

Q1,2 2SC2785FETA FM/AM(LW/MW) LOOP FILTER

Q3,4 2SC2787LTA FM IF AMP

Q84 2SA1309AQSTA LW/MW SWITCHING

Q85~87 2SC3311AQSTA LW/MW SWITCHING

Q81,82 UN4111FTA POWER SUPPLY (FM/AM)

Q83 2SC3311AQSTA BUFFER AMP (LW/MW OSC)

IC1 AN7273W FM/AM IF AMP, DET, AF AMP & AM OSC, MIX

Q5 2SC3311AQSTA SIGNAL DET.

FM OFFSET VOLTAGE (0mV) ADJ.

Q88 2SC3311AQSTA SWITCHING (FM:ON)

Q19 2SD1862QRTV6 REGULATOR

IC2 BA1332FT2 FM MPX

FM MPX VCO ADJ.

TP204 FM MPX VCO ADJ. (19kHz OUTPUT)

FM MONO DISTORTION ADJ.

Q8,9 2SC3311AQSTA BUFFER AMP

R45, R46 270K-(E,GC,GN) 680K-(EG)

R71, R72 1.8K-(E,GC,GN) 1K-(EG)

IC5 LM7001M-TE-L PLL FREQUENCY SYNTHESIZER

V (FM) 9.3V 3.9V 875MHz↔108MHz
V (LW) 6.3V 2.1V 144KHz↔288KHz
V (MW) 7V 1.3V 522KHz↔1602KHz

TP201 TP202 TP203 TP205 TP206

4.8V 11.6V 26.8V

For (GC,GN) areas.

For (E,EG) areas.

JK301 L ch / R ch — REC (OUT) / PLAY (IN) / DAT

R305 560, R306 560, C301 K1000P

Q305 -0.3V, Q306 -0.3V, R308 560, Q312 10K 10K

R302 12K, R313 1.2K, R315 1K

Q305,306 2SD1450QRSTA MUTING

Q312 UN4111TA MUTING CONT.

JK301 L ch / R ch — REC OUT

C891 100P, C892 100P, R305 560, R306 560, R429 100K, R430 100K, C300 Z01

JK301 L ch / R ch — PHONO

C871 100P, C872 100P, C873 100P, C874 100P, R871 330, R872 330, A, B

IC301,302 MCI4066BFR2 INPUT SELECTOR

IC304 BA4558FDXTI BUFFER AMP

IC301

IC871 AN6558SFE2 PHONO EQ AMP

R873 330, R874 330, R875 47K, C875 220P, C887 Z01, R881 180K, R883 12K, C881 0.022, C883 6800P, R879 68, C879 1000P, R877 270, C877 10V33, R876 47K, C876 220P, C880 1000P, R878 270, C878 10V33, R880 68, R882 180K, R884 12K, C882 0.022, C884 6800P, R886 220K, C886 50V3.3, C888 Z01, R885 220K, C885 50V3.3, R313 1.2K, R315 1K

IC302

R309 1.2K, R310 1.2K, C302 Z01, R322 100K, R324 1K, R316 1K, R314 1K

IC303 MC74HC04AFL2 INPUT SELECTOR CONTROL (INVERTER)

C304 Z01, R323 1K, R321 100K, D307 ISS254TA, R364 27K, R385 47K, D308 ISS254TA

R301 2K, R303 18K, R304 18K, R312 120, C303 Z01

C305 50V3.3 22K, R327 22K, R329 56K, R398 1K, C307 50V3.3, C306 50V3.3, R328 22K, C308 50V3.3, R330 56K, R397 1K

R326 22K, R325 22K

CD SIGNAL (L ch)

R317 56K, R319 12K, R318 56K, R320 22K

Q303,304 2SD1450QRSTA MUTING

Q307,308 2SC3311AQSTA MUTING

Q304, Q303, Q307, Q308

R396 1.2K, R399 1.2K, R331 5.6K, R335 1K, R336 1K, R333 22K, R334 22K, R337 4.7K, R342 10K, R341 10K, R343 10K, C342 50V1, C341 50V1, R332 5.6K

IC305 AN6554NSFE2 SURR/KARAOKE

R344 C309 Z01, R346 27K, R365 22K, R345 27K, R349 220K, R347 390K, R348 39K, R356 1.5K, R355 22K, C313 M0.082, C312 K0.068, R350 22K, R353 22K, R354 22K, R338 4.7K, R307 470K, C311 K0.012, R357 10K

Q311 10K 10K, Q313 10K 10K, R363 3.3K, Q314 22K 22K, Q316 10K, Q316 UN4215TA SWITCHING (KARAOKE)

Q324, Q323, D305 ISS254TA, D303 ISS254TA, D306 ISS254TA, R361 1M

Q323,324 2SJ164PQRTA SWITCHING (KARAOKE)

R362 100K, C343 25V10, C339 K0.01, R339 100K, C310 Z01

Q311,313 UN4111TA MUTING CONT.

Q314 UN4112TA SWITCHING (KARAOKE)

Q315 UN4112TA SWITCHING (SURROUND)

Q315, Q309, R359 1K, D302 ISS254TA

R457 820, R458 820, R455 2.2K, R456 2.2K, R453 R454, C330 Z01, C329 50V1, R395 R394 R393 R392 10K

Q452, Q451, Q454, Q453, C452 K0.01, C451 K0.01, R459 1K, R460 1K

IC307

R379 10K, R380 100K, C338 K100P, C308 K100P

Q309 2SD1450QRSTA SURROUND DRIVE

Q451~454 2SC3311AQSTA ATTENUATOR (ATLS)

Q317 11.6V, Q317 UN4212TA SWITCHING (SURROUND)

IC307 BU2040F-T2 SYSTEM CONTROL

CN101

Lch IN 1, Rch IN 2, AF GND 3, Lch OUT 4, Rch OUT 5, †B(4) 6, M.GND 7, †B(3) 8, D.GND 9

To B MECHANISM CONTROL CIRCUIT (CN103) on page 60

11.6V, 14.9V

Q321 4.8V, Q322 4.8V, Q320 4.8V, 10K 4.7K, D317 ISS254TA, D315 ISS254TA, D316 ISS254TA, R463 100K, R465 100K, R464 100K

Q320~322 UN4111FTA INTERFACE

R373 10K, R374 10K, C335 K4700P, C334 K4700P, C344 560P

R383 10K, C340 16V10

D319 ISS254TA, D314 ISS254TA, D304 ISS254TA

SPECTRUM ANALYZER SIGNAL

CP604: OPEN SW, CLS SW, RES, CD RST, STATUS, SUBQ, CLOCK, BLKCK, TLOCK, FLOCK, SENSE, MLD

To G MICRO COMPUTER CIRCUIT (CN604) on page 52

CN605: D.GND, MDATA, MCLK, MUTE, GE DATA, GE CLK, ADATA, ACLK, S UR

To I FL CIRCUIT (CP605) on page 55

CN606: KARA METER, BASS, VOLPWM, MUTE, MUTE B, HALT, PWR CNT

To I FL CIRCUIT (CP606) on page 56

CN607: -B(1), FL2, FL1, +B(SW), +B(STY), +B(4), -B(2), MIC OUT, GND, MIC IN

To I FL CIRCUIT (CP607) on page 56

IC305
AN6554NSFE2
SURR/KARAOKE

IC306
BA4558FDXTI
MIC MIXING

Q310
2SD1450QRSTA
SWITCHING
(KARAOKE)

Q316
UN4215TA
SWITCHING
(KARAOKE)

Q323,324
2SJ164PQRTA
SWITCHING
(KARAOKE)

IC401
AN7337NS-E2
G. EQUALIZER AMP

IC403

Q810
UN4114TA
MUTING

REC SIGNAL

IC801
M51131L-702
ATTENUATOR
(E.VOLUME)

IC802
BA4558FDXTI
V. BASS AMP

Q803,804
2SC3312QRSTA
V. BASS AMP

Q451~454
2SC3311AQSTA
ATTENUATOR
(ATLS)

IC307
BU2040F-T2
SYSTEM CONTROL

Q309
2SD1450QRSTA
SURROUND DRIVE

Q801,802
2SK381BCTA
SWITCHING
(V. BASS)

Q805,806
2SC3311AQSTA
MUTING

Q812
UN4212TA
SWITCHING
CONT.

IC790
TA7291S
MOTOR DR

SPECTRUM
ANALYZER
SIGNAL

CN607

CN702 IN

CP790A

CP790C

LOADING MOTOR

To I FL CIRCUIT (CP606) on page 56

To I FL CIRCUIT (CP607) on page 56

To A SERVO CIRCUIT (CN702A) on page 63

K LOADING MOTOR CIRCUIT

23 24 25 26 27 28 29 30 31 32

IC401
AN7337NS-E2
G. EQUALIZER AMP

IC403
LC7523M-TLM
BAND LEVEL CONTROL

IC402
AN7337NS-E2
G. EQUALIZER AMP

IC801
M51131L-702
ATTENUATOR (E.VOLUME)

IC802
BA4558FDXTI
V. BASS AMP

Q803, 804
2SC3312QRSTA
V. BASS AMP

Q810
UN4114TA
MUTING CONT.

Q807, 808
2SD1450QRSTA
MUTING

Q811
UN4111TA
MUTING CONT.

Q812
UN4212TA
SWITCHING CONT.

Q801, 802
2SK381BCTA
SWITCHING (V. BASS)

Q805, 806
2SC3311AQSTA
MUTING

Q455
2SD2137PQTA
REGULATOR

K LOADING MOTOR CIRCUIT

To A SERVO CIRCUIT (CN702A) on page 63

To M POWER AMP CIRCUIT (CN501) on page 63

To M POWER AMP CIRCUIT (CN502) on page 63

G MICRO COMPUTER CIRCUIT

IC951
MND241ORLAE
SYSTEM CONT.

D951 ISS291TA
D952 ISS254TA
D953 ISS254TA
D954 ISS254TA

L951 3.3μH
L953 2.2μH
L954 2.2μH
L955 2.2μH
L956 2.2μH

X951 (4MHz)
X952 (32KHz)

Q951 UN4213TA SWITCHING (RESET)
Q951

R954 82K
R955 1K
R956 3.3Ω
R958 220K
R959 47K
R960 1K
R961 100K
R962 100K
R963 470K
R964 470K
R965 47K
R966 4.7K
R967 4.7K
R968 47K
R971 100K
R972 10K
R973 220K
R974 10K
R975 1K
R977 1K
R981 1K
R982 1K
R983 1K
R984 1K
R985 10K
R986 10K
R987 10K
R988 10K
R991 10K
R995 100K
R996 560
R997 100K
R998 100K
R999 100K

C951 K560P
C952 K560P
C953 K560P
C954 K1000P
C955 6.3V1000
C956 5.5V47000
C957 6.3V47
C959 J15P
C960 J22P
C961 50V1
C962 M0.01
C964 K1000P
C965 K1000P
C966 M0.01
C967 10V22
C968 50V1

3.1V p-p
F=32KHz

T=22ms

For (GC,GN) areas.

P50 P51 P52 P53 P54 P55 P56
SRDY
NC NC
DOT T.REC T.PLAY CLK DATA CS

PWR CNT MUTE A VOL LIMIT MBPI MBP2 RMOCON IN BLKCK STATUS CD RST RST MLD/PLL CL MDATA/PLL CE MCLK/PLL DI CLOCK SUBQ SYNC CM TLOCK FLOCK REST CD OPEN SW CD CLOSE SW SENSE HALT

VREF- ADIN7 ADIN6 ADIN5 ADIN4 ADIN3 ADIN2 ADIN1 ADIN0 VREF+ JOGA JOGB MKDATA MKCLK ACLK ADATA SPCLK

W607B
W606B

CN604
OPEN SW, CLK SW, REST, CD RST, STATUS, SUBQ, CLOCK, BLKCK, TLOCK, FLOCK, SENSE, MLD

W205
+B(SW), MKCLK, MKDATA, VREF(-), AD IN1, AD IN2, AD IN5, AD IN6, AD IN7, VREF(+)

To J MAIN CIRCUIT (CP604) on page 48

To B MECHANISM CONTROL CIRCUIT(CN205) on page 60

H OPERATION CIRCUIT

R901 1K, R902 2.2K, R903 1.8K
C901 K560P
S901 (CD EDIT), S902 (TUNING), S903 (FM MODE/BP), S904 (DISPLAY SPECTRUM MODE)

R905 1K, R906 1K, R907 1.2K, R908 1.8K, R909 2.2K, R910 2.7K, R911 4.7K
C902 K560P
S906 (CLOCK/TIMER), S907 (SET), S908 (CANCEL), S909 (POWER), S910 (SLEEP), S911 (TAPE), S912 (TUNER)

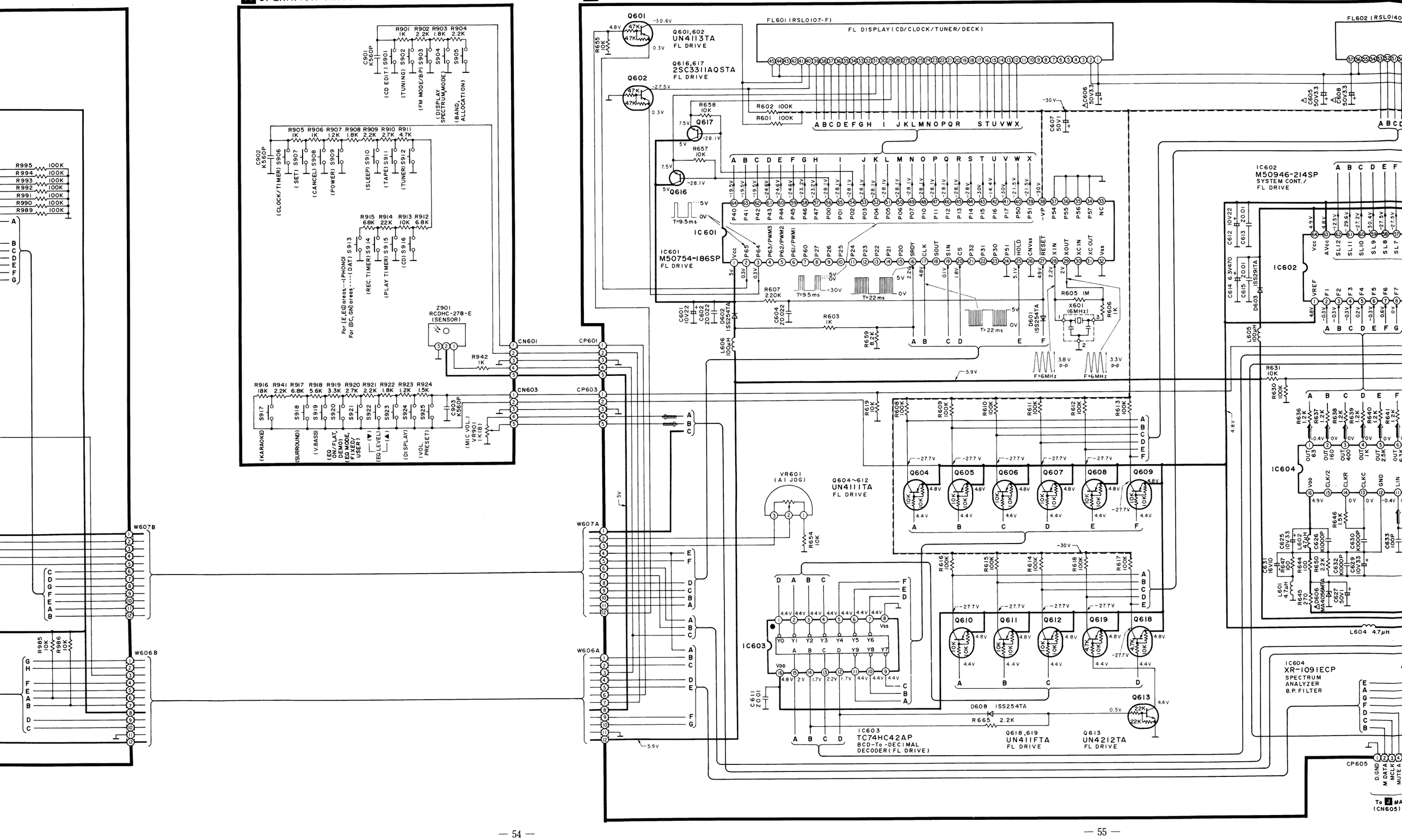
R915 68K, R914 22K, R913 10K, R912 6.8K
S913 (PHONO) (CD), S914 (DAT) (REC.TIMER), S915 (PLAY TIMER), S916 (CD)
For (E,EG) areas:---(PHONO)
For (GC, GN) areas:----(DAT)

Z901 RCDHC-2 (SENSOR)

R916 1.8K, R941 2.2K, R917 6.8K, R918 5.6K, R919 3.3K, R920 2.7K, R921 2.2K, R922 1.8K, R923 1.2K, R924 1.5K, R925
S917 (KARAOKE), S918 (SURROUND), S919 (V.BASS), S920 (EQ FLAT, ON/OFF, DEMO), S921 (EQ MODE, FIXED/USER), S922 (▼), S923 (EQ LEVEL), S924 (▲), S925 (DISPLAY), (VOL PRESET)

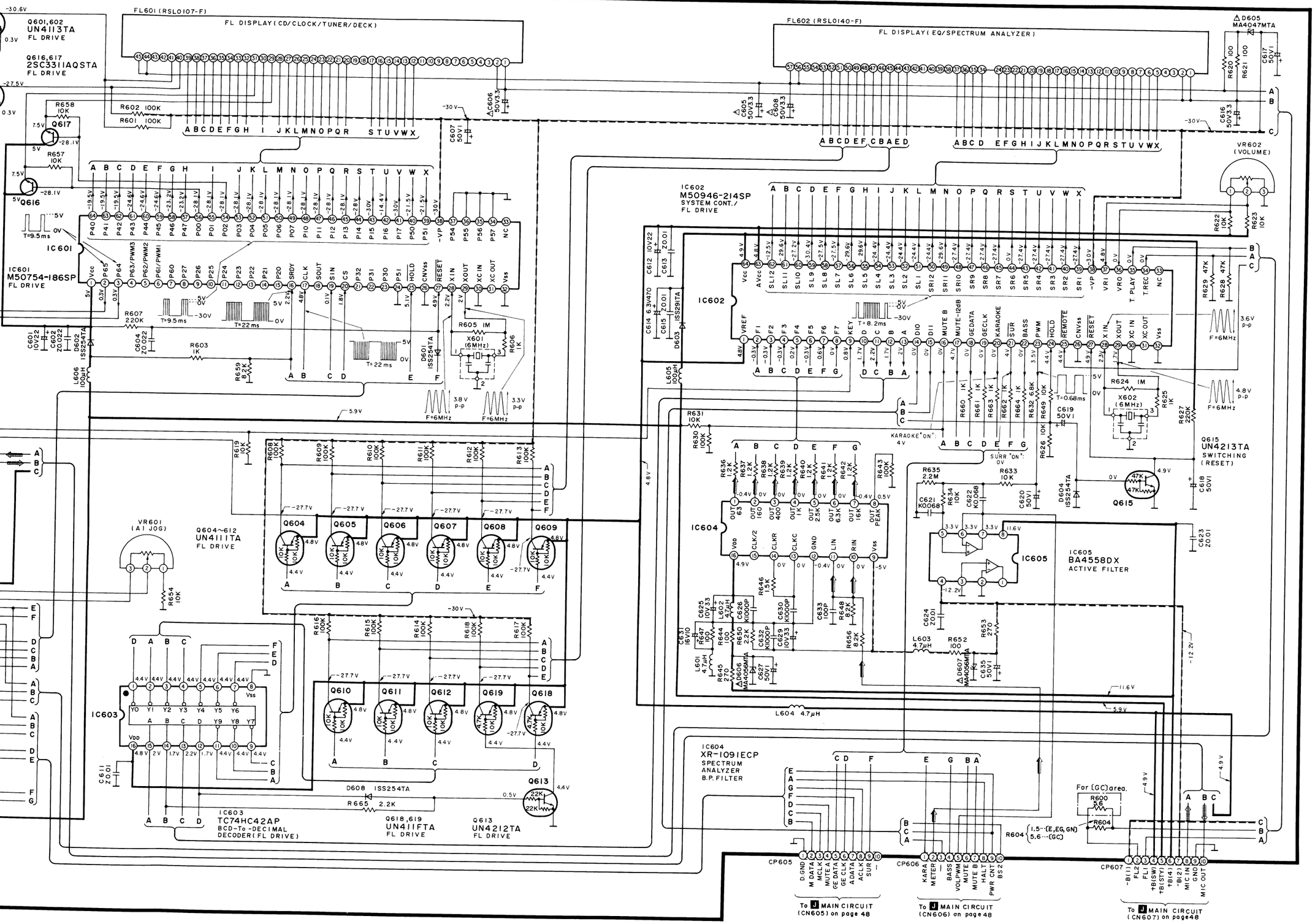
H OPERATION CIRCUIT

I FL CIRCUIT

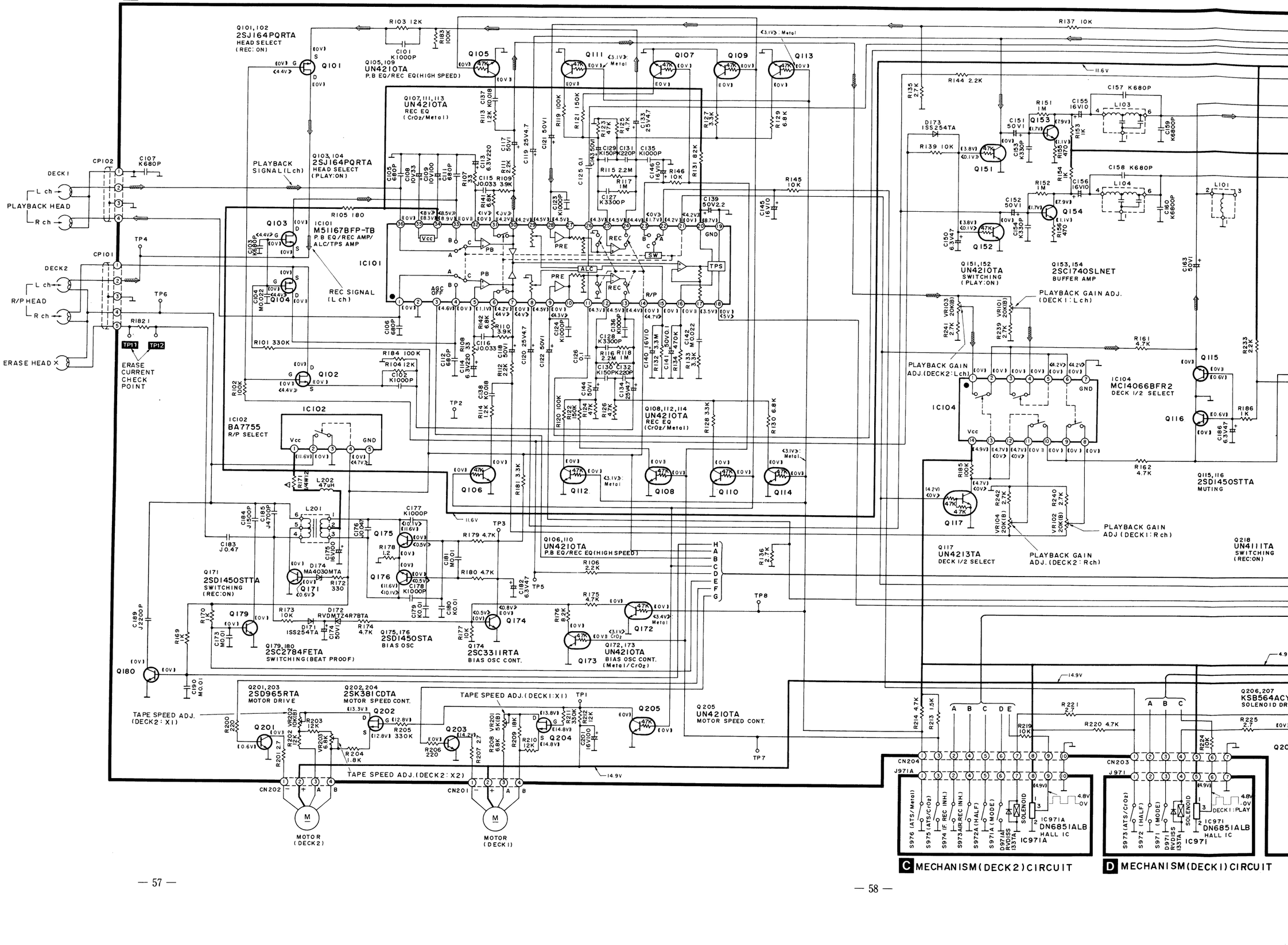


13 14 15 16 17 18 19 20 21 22

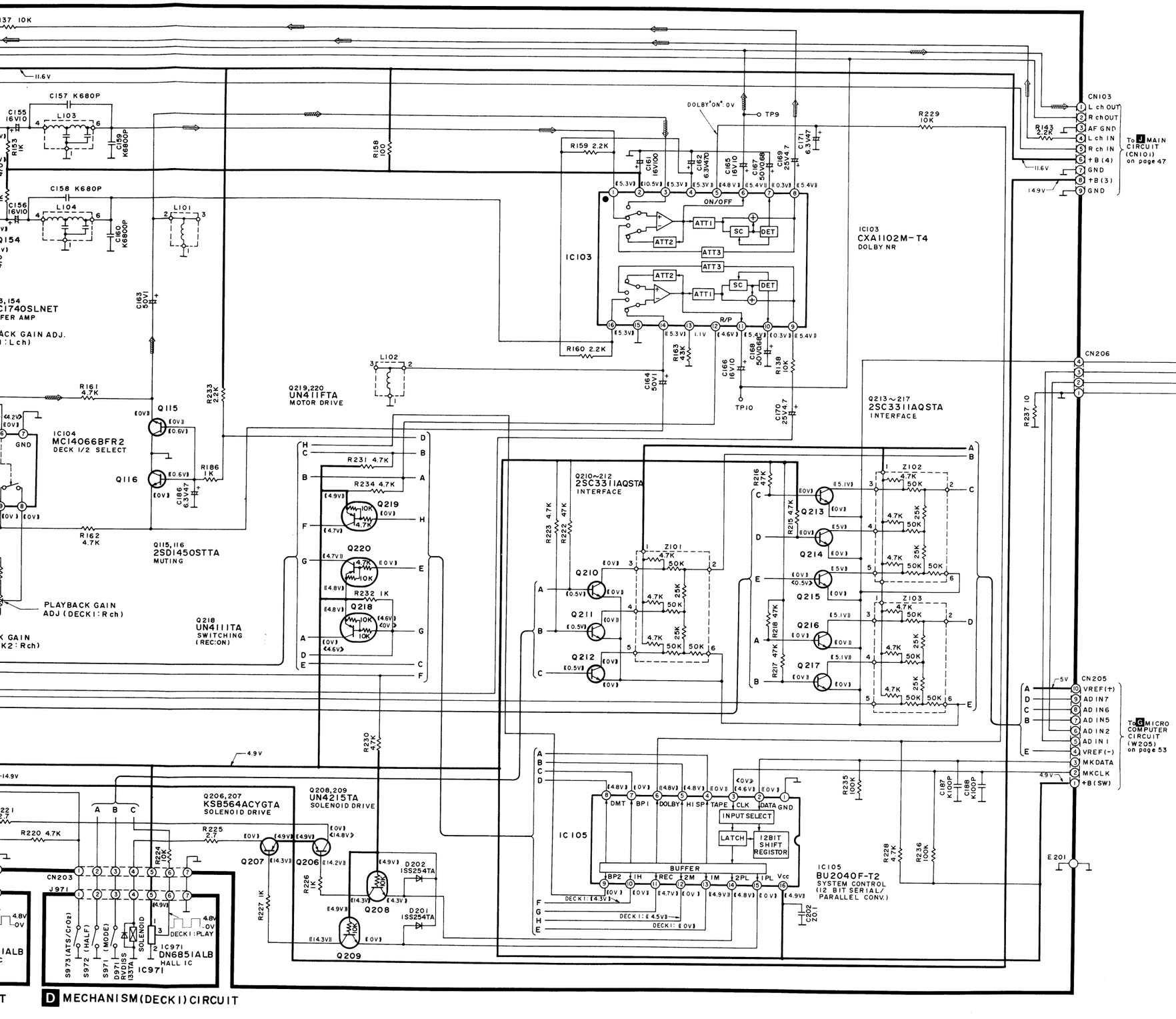
U IT


FL601 (RSL0107-F)
FL DISPLAY(CD/CLOCK/TUNER/DECK)
FL602 (RSL0140-F)
FL DISPLAY(EQ/SPECTRUM ANALYZER)
Q601,602 UN4113TA FL DRIVE
Q616,617 2SC3311AQSTA FL DRIVE
Q617
Q616
IC601 M50754-186SP FL DRIVE
IC602 M50946-214SP SYSTEM CONT./ FL DRIVE
IC603 TC74HC42AP BCD-To-DECIMAL DECODER(FL DRIVE)
IC604 XR-1091ECP SPECTRUM ANALYZER B.P. FILTER
IC605 BA4558DX ACTIVE FILTER
Q604~612 UN4111TA FL DRIVE
Q618,619 UN4111FTA FL DRIVE
Q613 UN4212TA FL DRIVE
Q615 UN4213TA SWITCHING (RESET)
VR601 (AI JOG)
VR602 (VOLUME)
X601 (6MHz)
X602 (6MHz)
KARAOKE "ON": 4V
SURR "ON": 0V
For (GC) area.
R604 1.5···(E,EG,GN) 5.6···(GC)
CP605 D.GND M DATA MCLK MUTE A GE DATA GE CLK A DATA ACLK SUR
CP606 KARA METER BASS VOLPWM MUTE MUTE B HALT PWR CNT BS2
CP607 -B(1) FL2 FL1 +B(SW) +B(STY) -B(2) MIC IN GND MIC OUT
To J MAIN CIRCUIT (CN605) on page 48
To J MAIN CIRCUIT (CN606) on page 48
To J MAIN CIRCUIT (CN607) on page48

B MECHANISM CONTROL CIRCUIT

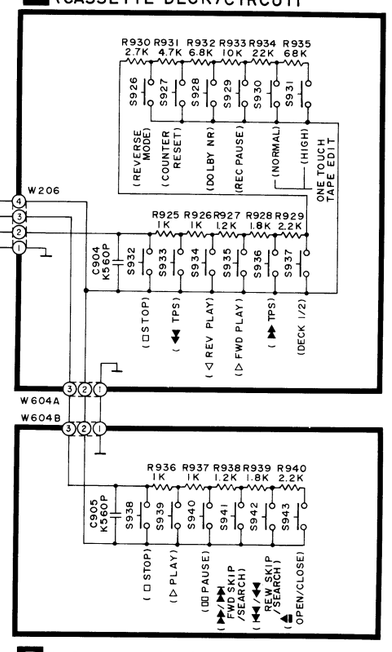


32 33 34 35 36 37 38 39 40 41



D MECHANISM (DECK 1) CIRCUIT

E OPERATION (CASSETTE DECK) CIRCUIT



F OPERATION (CD) CIRCUIT

A SERVO CIRCUIT

△OPTICAL PICKUP

Q701
2SB709STW
LASER POWER DRIVE

IC701
AN8802SCE IV
SERVO AMP

IC702
MN66271RA
SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/DIGITAL FILTER/D/A CONVERTER

IC703
AN8389SE1
FOCUS COIL/TRACKING COIL/ TRAVERSE MOTOR/ SPINDLE MOTOR DRIVE

BEST EYE ADJ.

M702 SPINDLE MOTOR

M701 TRAVERSE MOTOR

TRACKING COIL

FOCUS COIL

S701 (REST)

To **M** MAIN CIRCUIT (CN702) on page 50

10 11 12 13 14 15 16 17 18 19

TP18

4.9V

TP22

CN702A

23	L ch OUT
22	A. GND
21	R ch OUT
20	+B (2)
19	D. GND
18	LD SW
17	TX
16	+B (1)
15	P. GND
14	MCLK
13	M DATA
12	MLD
11	SENSE
10	/ FLOCK
9	/ TLOCK
8	B LKCK
7	SQCK
6	SUBQ
5	D. MUTE
4	STAT
3	/ RST
2	SMCK
1	REST SW

7.7V

R743 5.6K
R742 5.6K
R741 5.6K

To J MAIN CIRCUIT (CN702) on page 50

M POWER AMP CIRCUIT

△IC501

IC501 SVI3101D POWER AMP

TP503

R502 1K

R501 1K

TP504

TP505

L504

R566 10

For (GC) area.

L503

R565 10

For (E,EG,GN) areas.

IC502

IC502 BA3920 POWER SUPPLY CONT.

TP501

CN502

12	MO.GND
11	+B (1)
10	D.GND
9	CD.GND
8	+B (2)
7	+B (3)
6	FUNCT I
5	Lch IN
4	GND
3	Rch IN
2	HALT
1	PWR CNT

To J MAIN CIRCUIT (CP502) on page 51

△R563 1/2W2.2

CN501

12	-B (1)
11	FL 2
10	FL 1
9	+B (SW)
8	+B (STY)
7	+B (4)
6	-B (2)
5	—
4	MIC OUT
3	GND
2	+B (5)
1	+B (6)

To J MAIN CIRCUIT (CP501) on page 51

TP502

JK502 SURROUND SPEAKERS (8~16Ω) L ch R ch

JK501 SPEAKERS (6Ω) R ch L ch

For (E,EG,GN) areas.

IC503 M5218AP MIC AMP

L HEADPHONE/ MIC JACK CIRCUIT

JK521 HEADPHONES

R525A 180 R523 180
R524A 180 R526 180

MIC SIGNAL

JK271 MIC

R272 1K

W505 CN505

For (E,EG,GN) areas.

C565 K1000P
C566 K1000P
C567 K1000P

R555 100

C557 50V2.2 ····(E,EG,GN) 16V22 ·····(GC)

C553 50V3.3

R551 1K

Q503 2SD2137PQTA REGULATOR

Q505 2SD1762EF REGULATOR

Q506 2SB1357EFTA REGULATOR

Q504 2SC3311AQSTA SWITCHING

Q519 2SB1185EF REGULATOR

Q520 KSD471ACYGTA REGULATOR

Q521 DTB123YSTP + STABILIZER

Q501 KSB564ACYGTA POWER SUPPLY

Q507 2SC3311AQSTA REGULATOR

Q508 KSB564ACYGTA REGULATOR

Q509 2SC3311AQSTA RELAY DRIVE

RLY501

D503~D506 RLIN4003N02

C530 35V2200··· (E,EG,GN) 35V3300··(GC)

C541, C542 50V2200····(E,EG,GN) 50V3300····(GC)

△R524 1/2W56

△R525 1/2W2.2

△R559 1/6W0.1

△R509 1/4W47

△R528 1/2W39

△R562 1/2W47

△R561 1W47

R557 1.2K

R545 8.2K

△R535 1/4W4.6

△R538 1/4W8.2

△R543 1/4W8.2

R534 22K

R539 4.7K

R540 4.7K

R558 4.7K

E501

N POWER SUPPLY CIRCUIT For (GC) area.

CN504B2 CN504B1

△T501

△JK503 AC IN

(110/127/220/240V 50/60Hz)

△F1 T800mA

△F2 T2A

110V 127V 220V 240V

△S501 (VOLTAGE ADJ.)

N POWER SUPPLY CIRCUIT For (E,EG,GN) areas.

CN504B2 CN504B1 CN504A2 CN504A1

△T501

△F1 T800mA

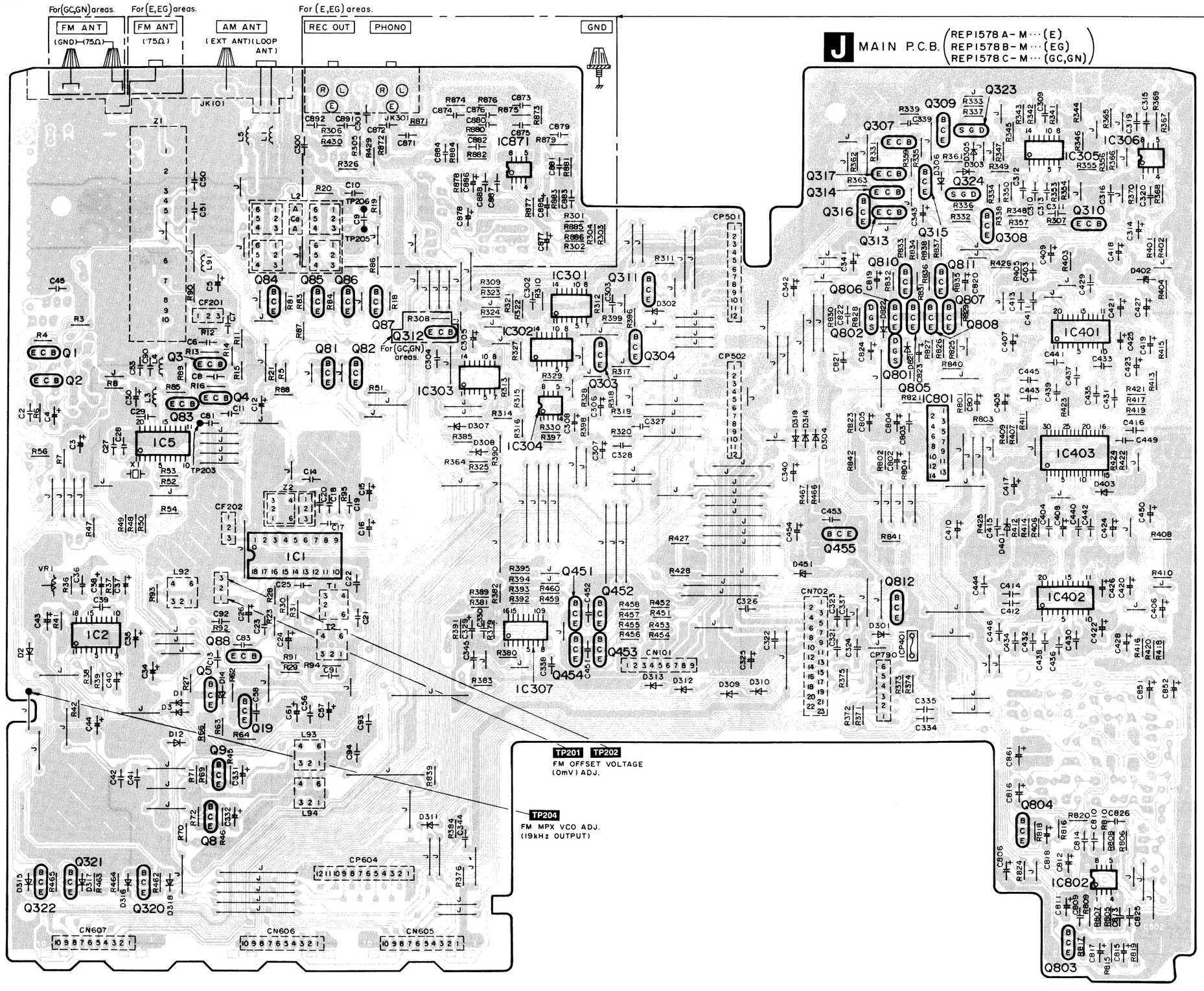
△L501

△JK503 AC IN

(230V·····(E,EG) 230-240V···(GN) 50/60 Hz)

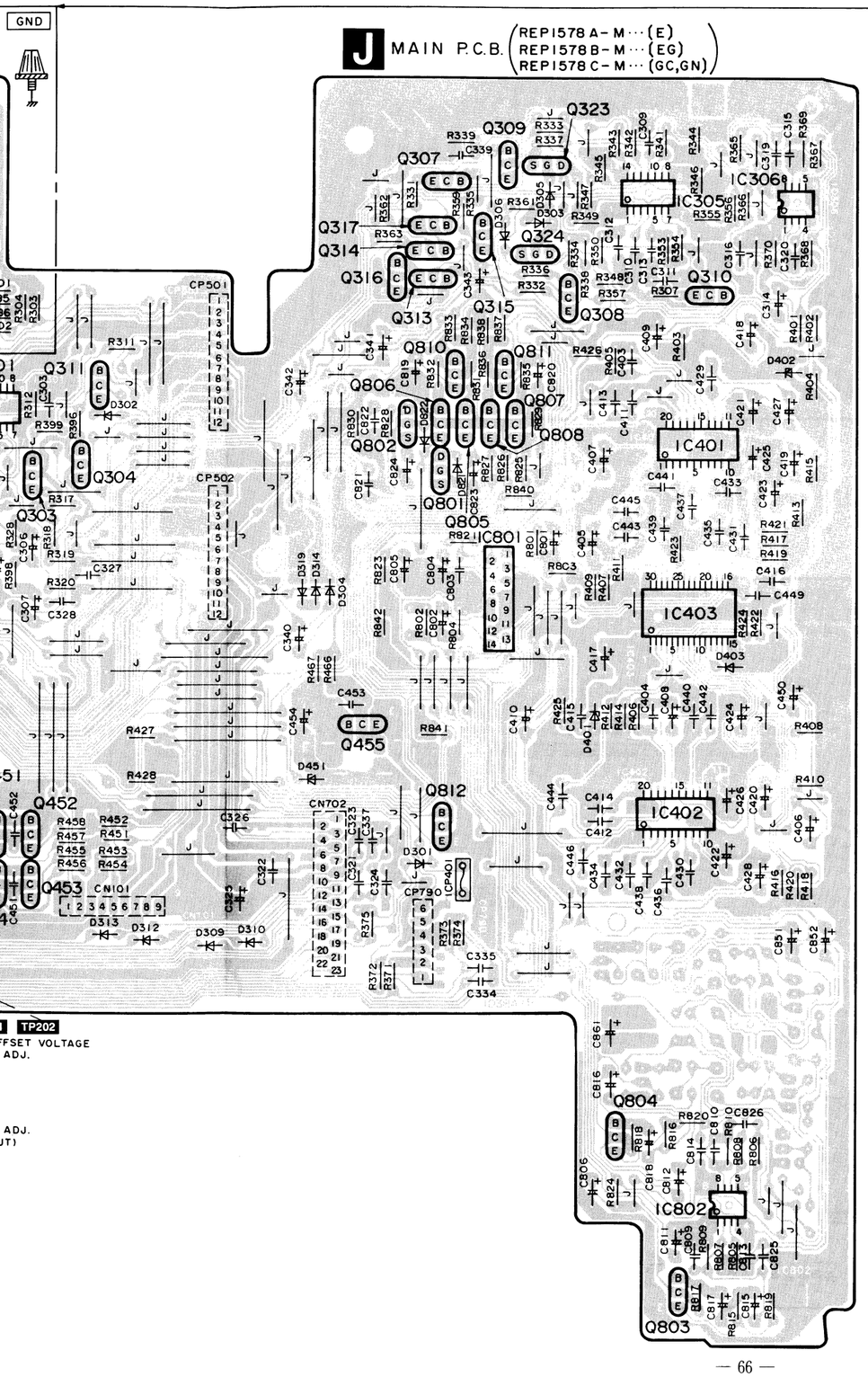
AC 25.5V AC 25.5V AC 16.2V AC 23.9 AC 4.7V

■ PRINTED CIRCUIT BOARDS

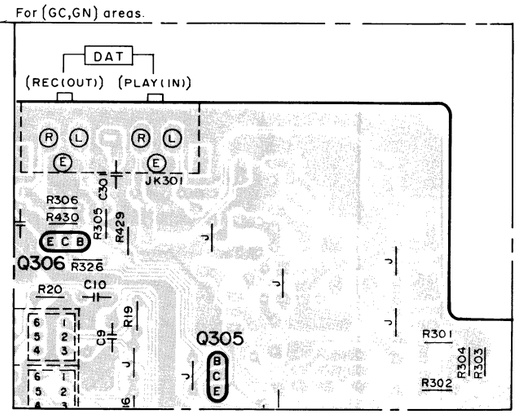


5 6 7 8 9 10 11 12 13 14

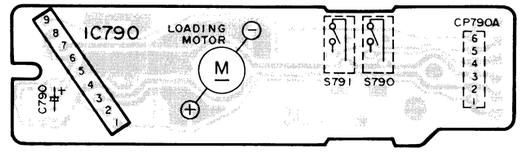
J MAIN P.C.B. (REP1578A-M···(E) / REP1578B-M···(EG) / REP1578C-M···(GC,GN))



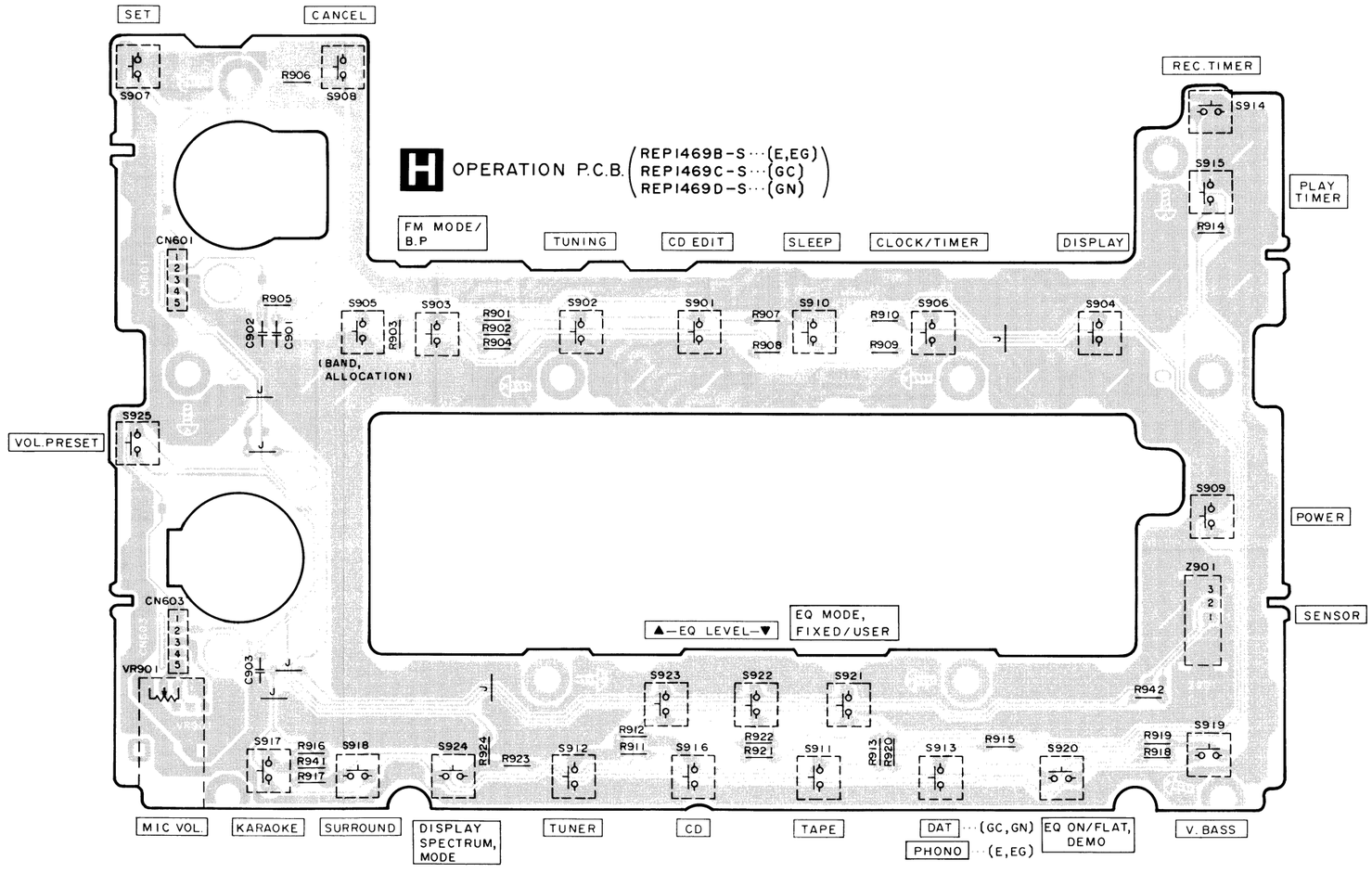
For (GC,GN) areas.



K LOADING MOTOR P.C.B. (REP0767)

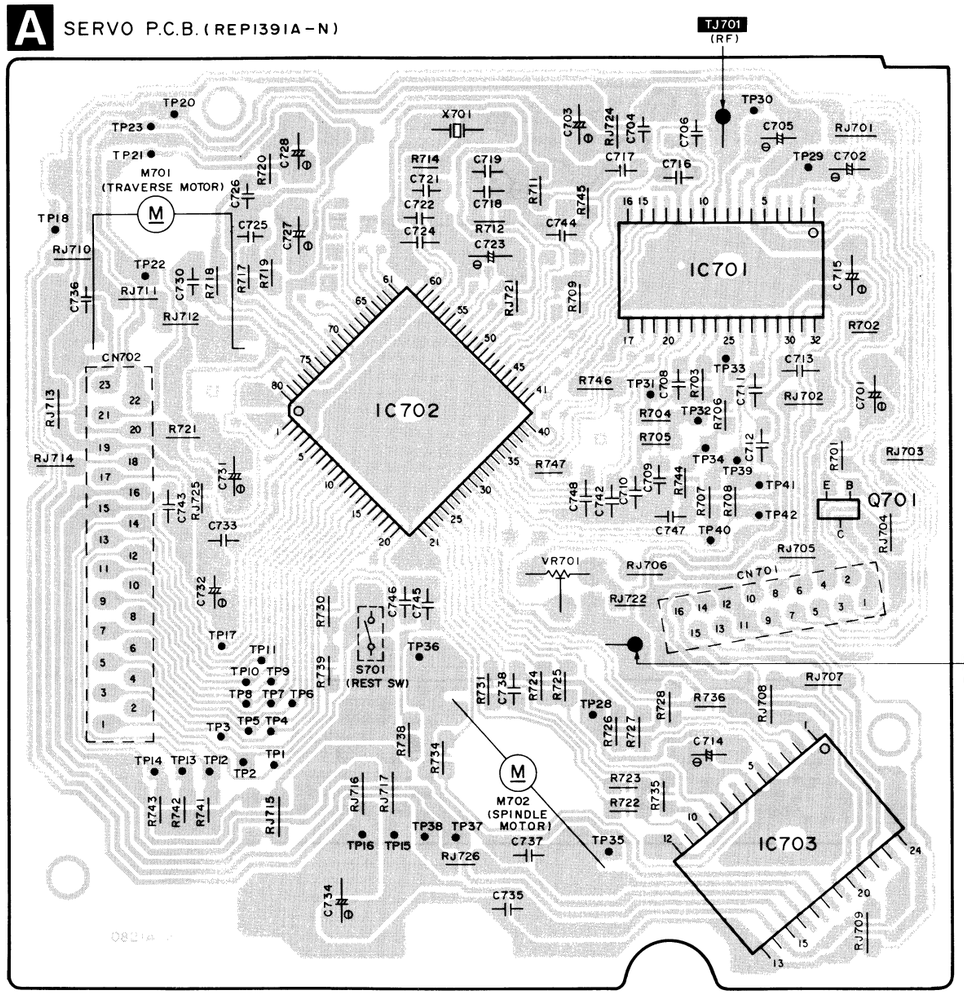


H OPERATION P.C.B. (REP1469B-S···(E,EG) / REP1469C-S···(GC) / REP1469D-S···(GN))

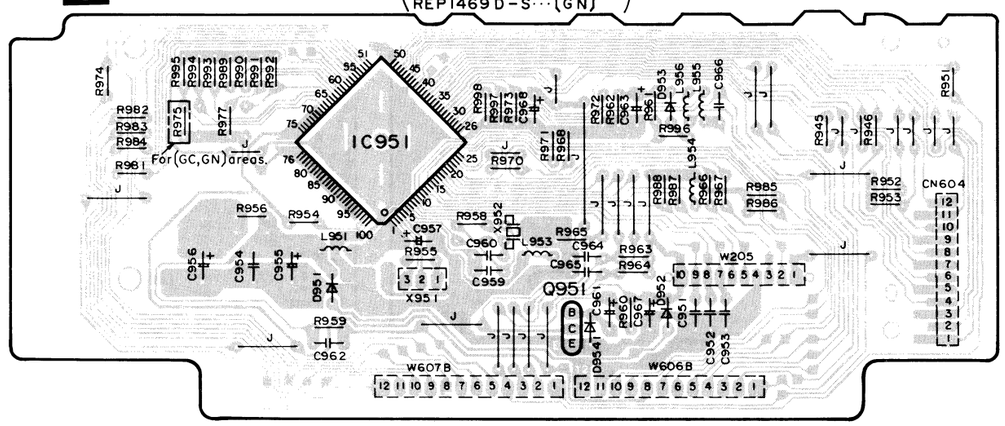


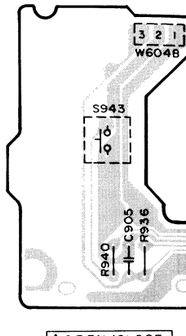
SA-CH350 SA-CH350

A SERVO P.C.B. (REPI391A-N)

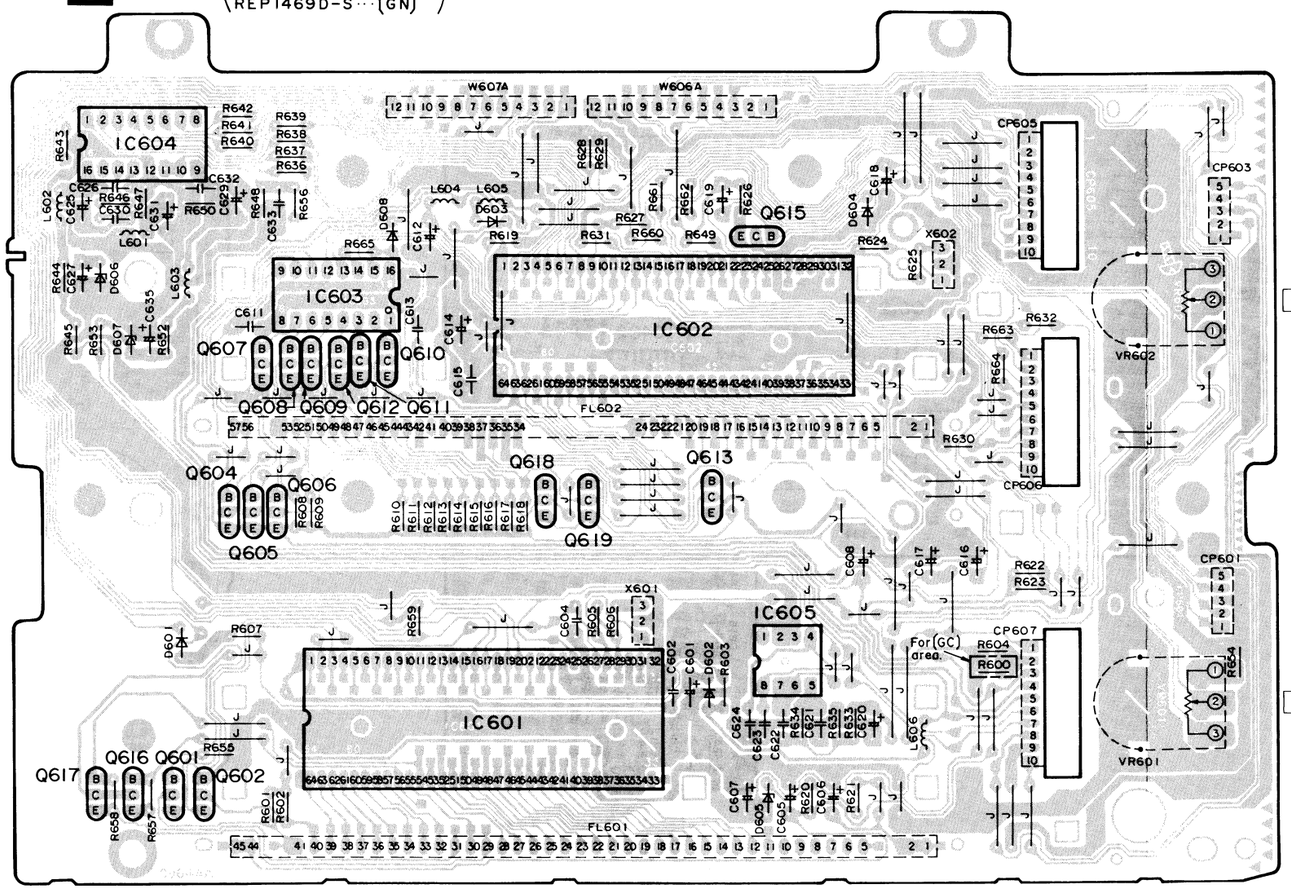


G MICRO COMPUTER P.C.B. (REPI469B-S···(E,EG) REPI469C-S···(GC) REPI469D-S···(GN))



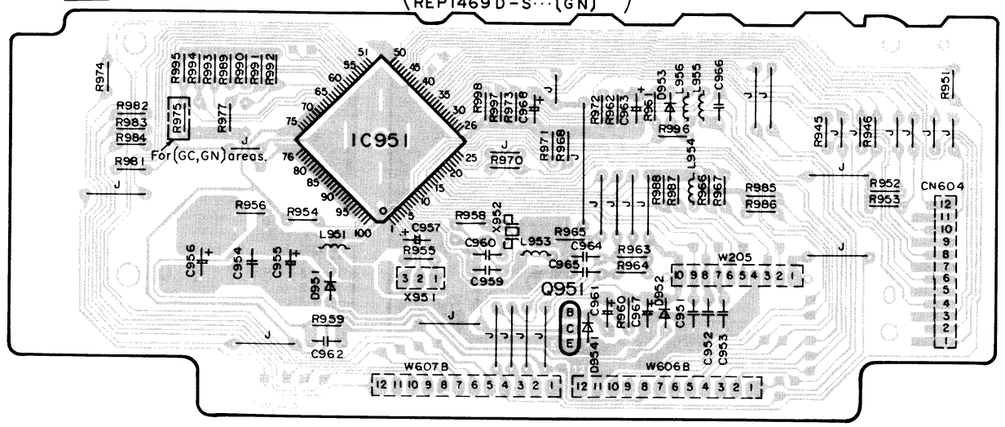


I FL P.C.B. (REPI469B-S···(E,EG) REPI469C-S···(GC) REPI469D-S···(GN))

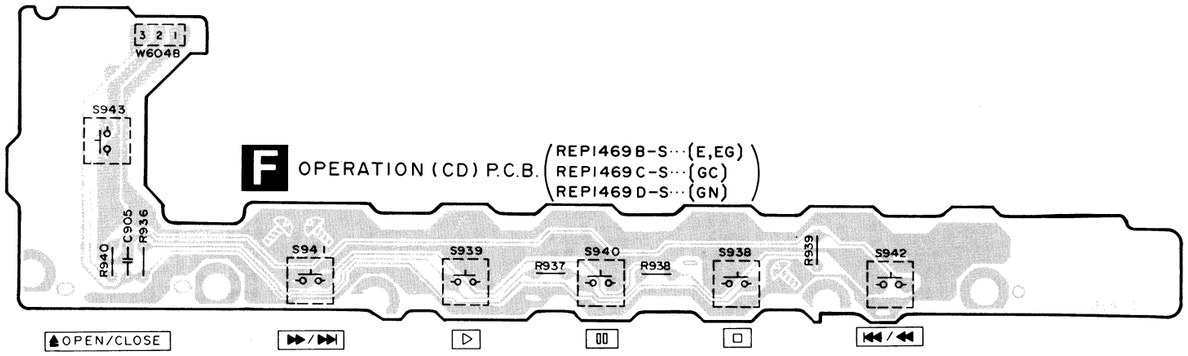


5 6 7 8 9 10 11 12 13 14

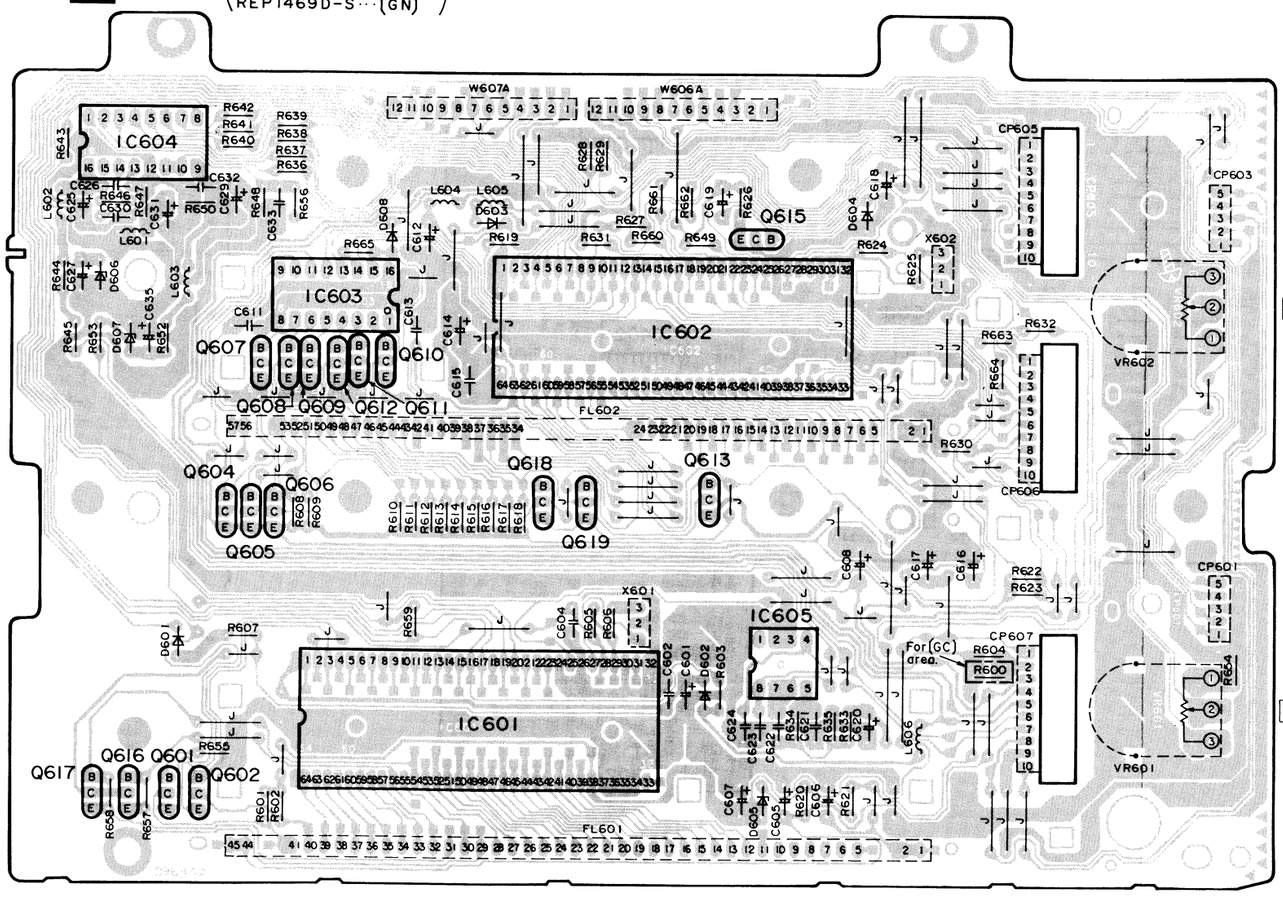
G MICRO COMPUTER P.C.B. (REP1469B-S···(E,EG) REP1469C-S···(GC) REP1469D-S···(GN)



F OPERATION (CD) P.C.B. (REP1469B-S···(E,EG) REP1469C-S···(GC) REP1469D-S···(GN)

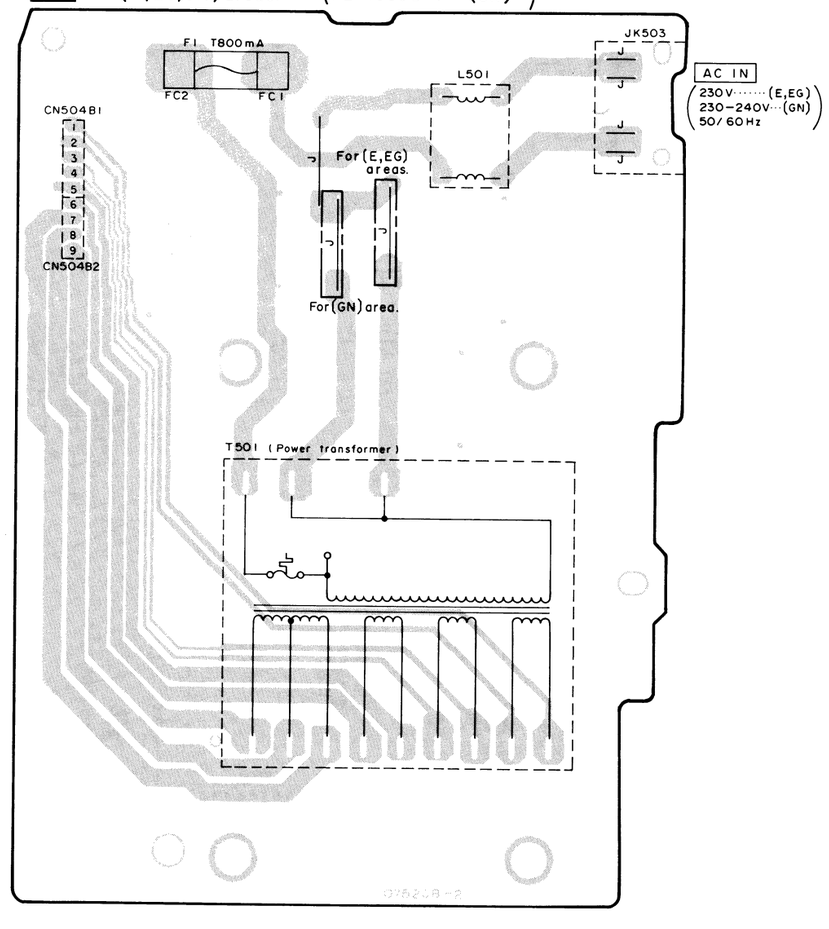


I FL P.C.B. (REP1469B-S···(E,EG) REP1469C-S···(GC) REP1469D-S···(GN)

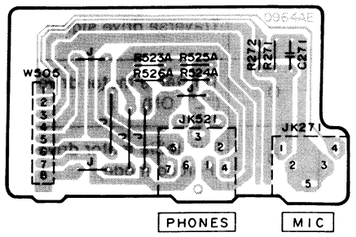


TJ702 (VREF)

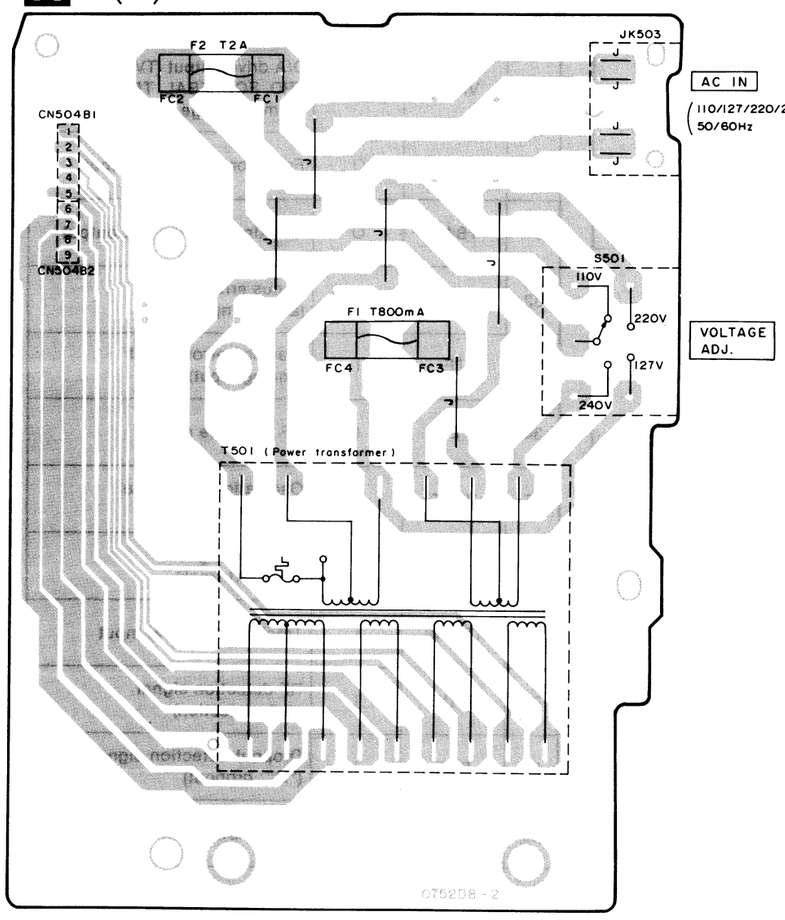
N POWER SUPPLY P.C.B. For (E,EG,GN) areas. (REP1530B-P···(E,EG) REP1530D-P···(GN)



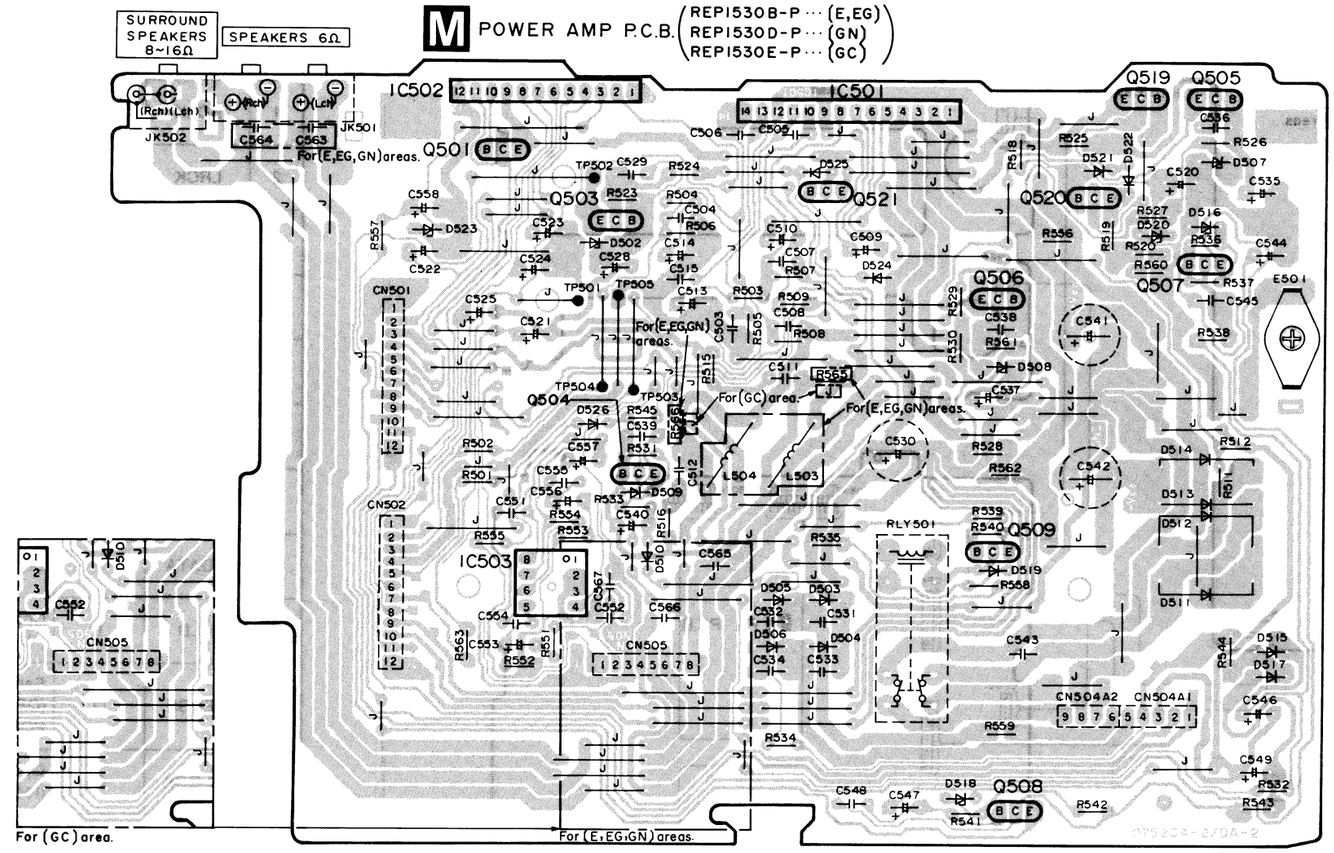
L HEADPHONE / MIC JACK P.C.B. (REP1469B-S···(E,EG) REP1469C-S···(GC) REP1469D-S···(GN)



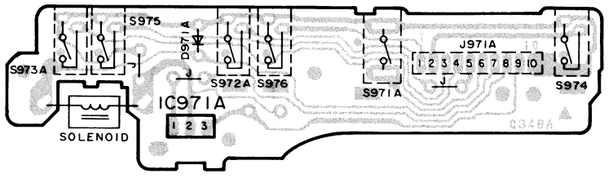
N POWER SUPPLY P.C.B. For (GC) area. (REP1530E-P)



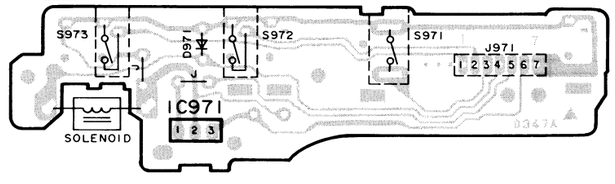
M POWER AMP P.C.B. (REP1530B-P···(E,EG) REP1530D-P···(GN) REP1530E-P···(GC)



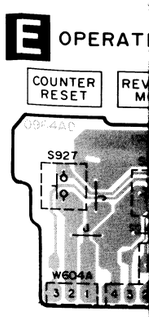
C MECHANISM(DECK2) P.C.B.(REP0532)



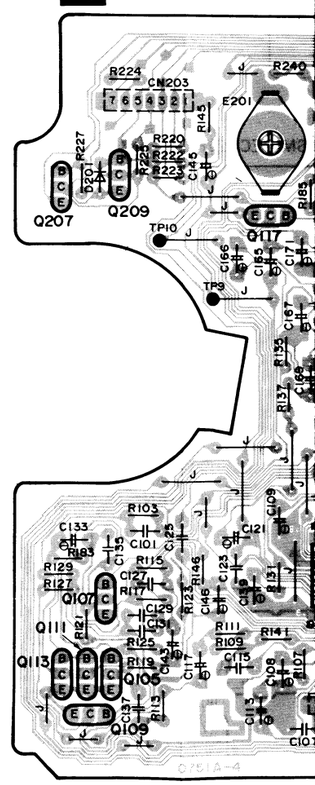
D MECHANISM(DECK1) P.C.B.(REP0531)



E OPERAT

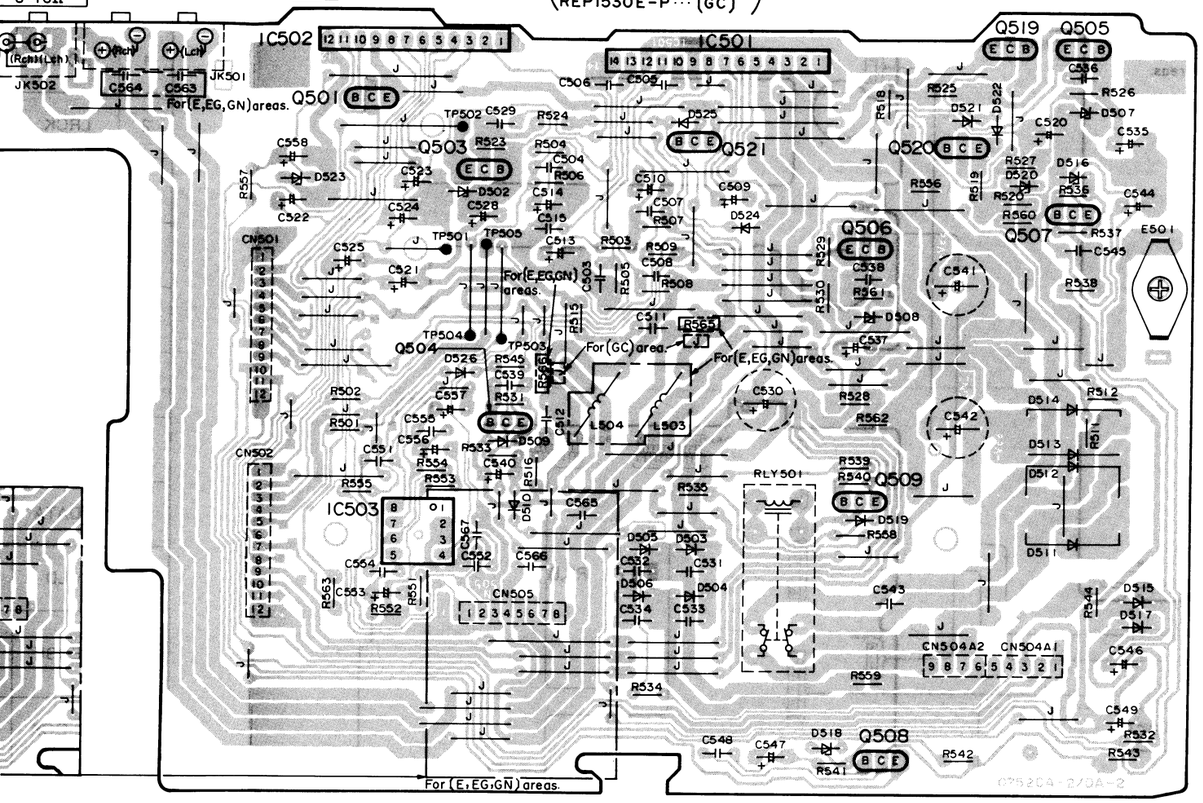


B MECHANISM CONT

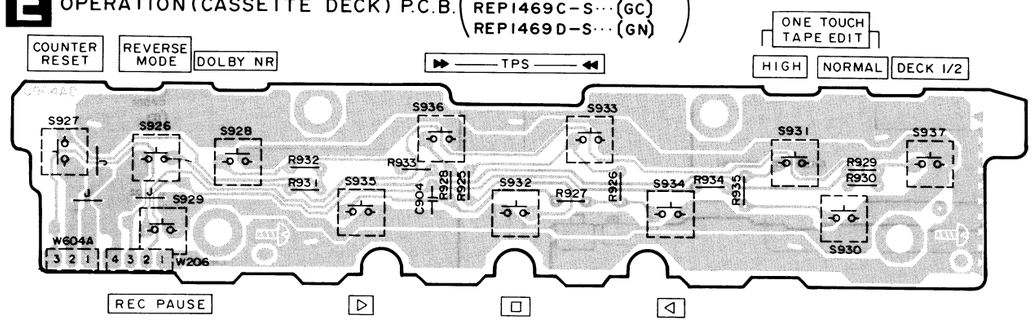


19 20 21 22 23 24 25 26 27 28

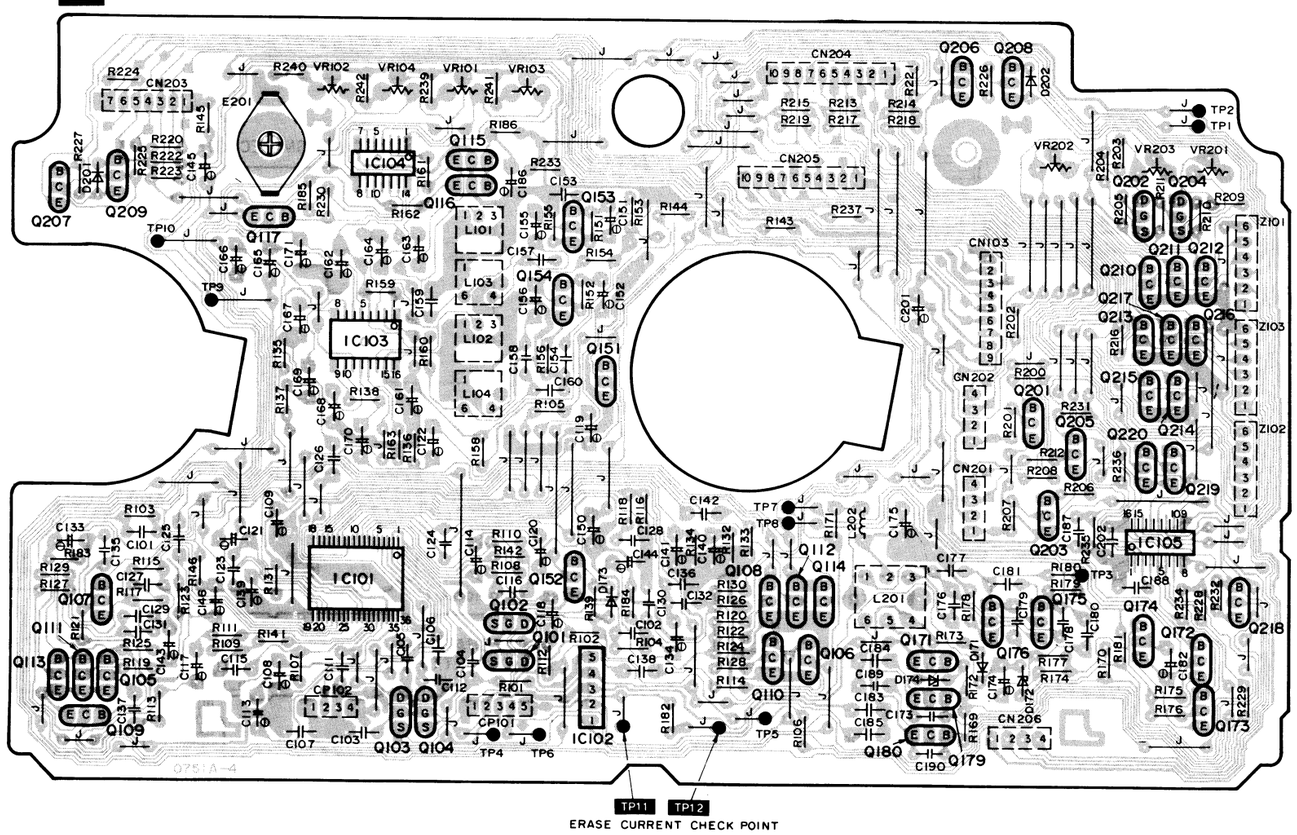
M POWER AMP P.C.B. (REPI530B-P ··· (E,EG) / REPI530D-P ··· (GN) / REPI530E-P ··· (GC))



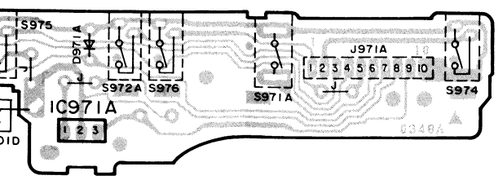
E OPERATION (CASSETTE DECK) P.C.B. (REPI469B-S ··· (E,EG) / REPI469C-S ··· (GC) / REPI469D-S ··· (GN))



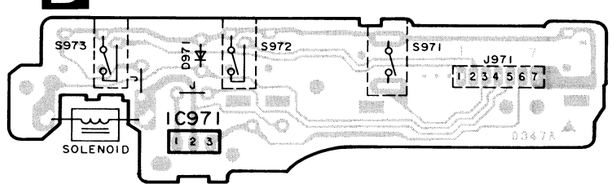
B MECHANISM CONTROL P.C.B. (REPI529B-T)



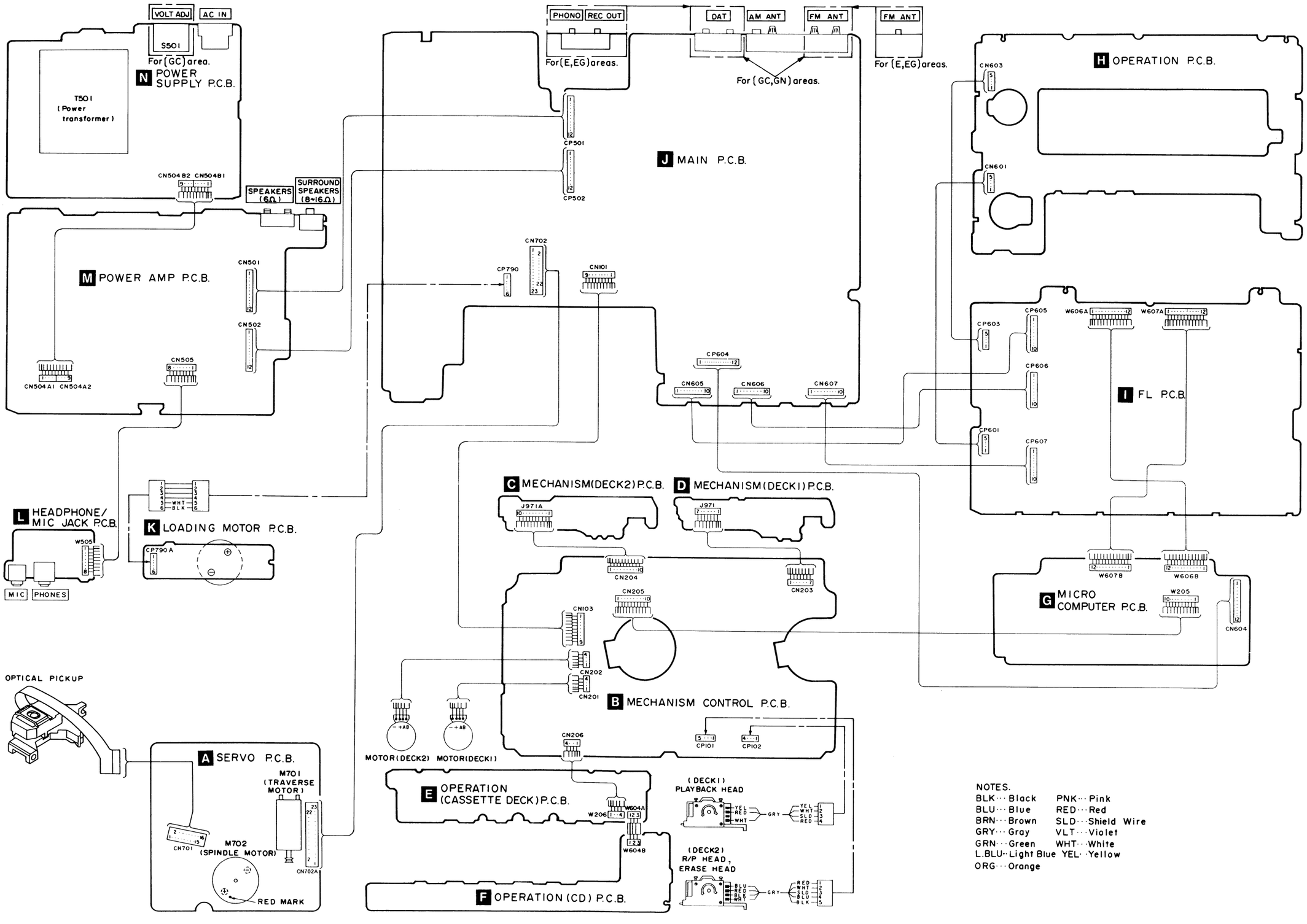
MECHANISM (DECK2) P.C.B. (REP0532)



D MECHANISM (DECK1) P.C.B. (REP0531)



■ WIRING CONNECTION DIAGRAM



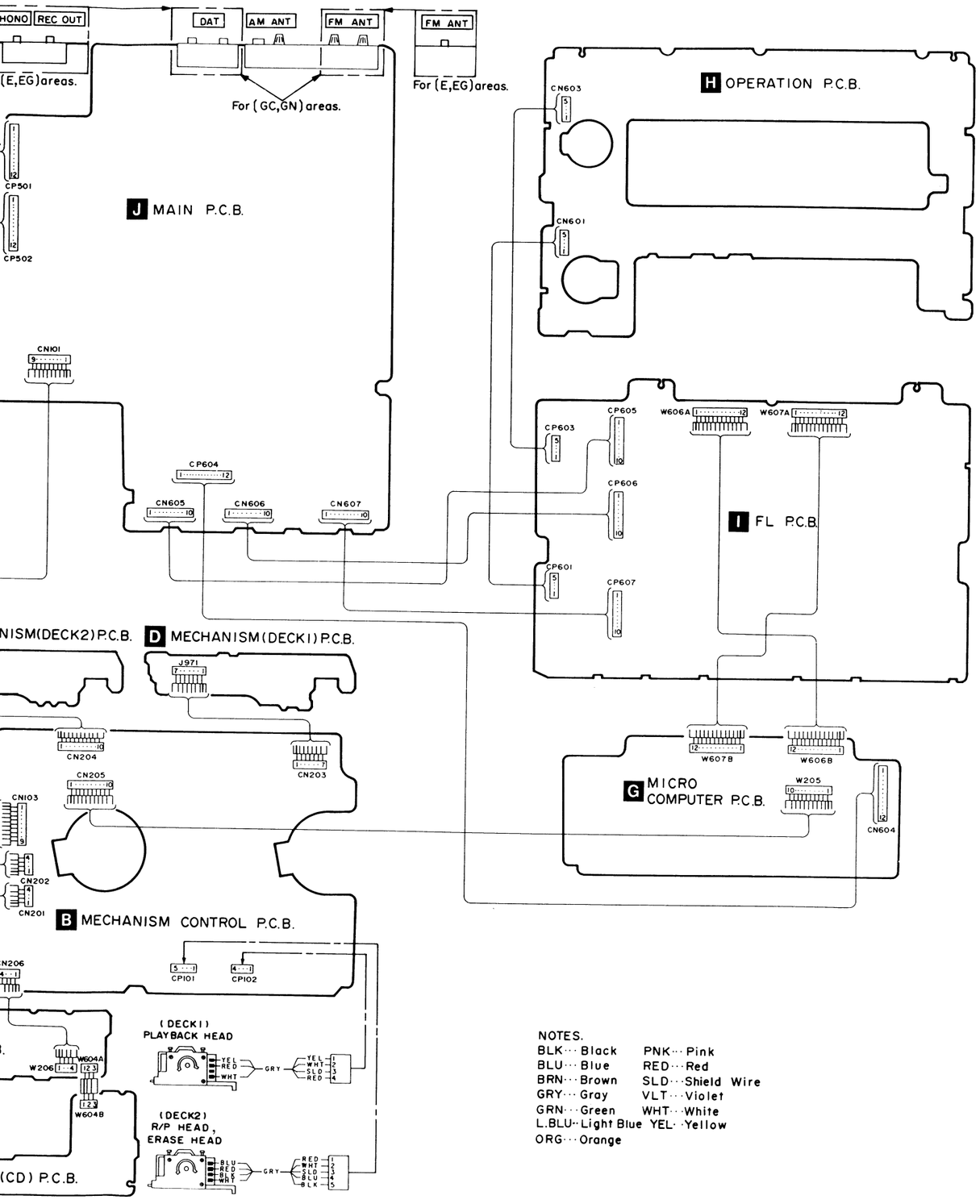
NOTES.

BLK	Black	PNK	Pink
BLU	Blue	RED	Red
BRN	Brown	SLD	Shield Wire
GRY	Gray	VLT	Violet
GRN	Green	WHT	White
L.BLU	Light Blue	YEL	Yellow
ORG	Orange		

■ TERMINA

• IC702 (MN6627

Pin No.	Mark	D
1	BCLK	
2	LRCK	
3	SRDATA	
4	$DV_{DD}1$	
5	$DV_{SS}1$	
6	TX	
7	MCLK	
8	MDATA	
9	MLD	
10	SENSE	
11	/FLOCK	
12	/TLOCK	
13	BLKCK	
14	SQCK	
15	SUBQ	
16	DMUTE	
17	STAT	
18	/RST	
19	SMCK	
20	PMCK	
21	TRV	



NOTES.

BLK	Black	PNK	Pink
BLU	Blue	RED	Red
BRN	Brown	SLD	Shield Wire
GRY	Gray	VLT	Violet
GRN	Green	WHT	White
L.BLU	Light Blue	YEL	Yellow
ORG	Orange		

■ TERMINAL FUNCTION OF IC'S

• IC702 (MN66271RA): Digital servo processor/digital signal processor/digital filter/D/A converter

Pin No.	Mark	I/O Division	Function
1	BCLK	O	Serial bit clock terminal
2	LRCK	O	L/R discriminating signal
3	SRDATA	O	Serial data (Not used, open)
4	$DV_{DD}1$	I	Power supply (digital circuit) terminal
5	$DV_{SS}1$	—	GND (digital circuit) terminal
6	TX	O	Digital audio interface signal
7	MCLK	I	Command clock signal
8	MDATA	I	Command data signal
9	MLD	I	Command load signal ("L": LOAD)
10	SENSE	O	Sense signal (OFT, FESL, NACEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Optical servo condition (focus) ("L": lead-in)
12	/TLOCK	O	Optical servo condition (tracking) ("L": lead-in)
13	BLKCK	O	Sub-code block clock (f=75Hz)
14	SQCK	I	Sub-code Q register clock
15	SUBQ	O	Sub-code Q data
16	DMUTE	I	Muting input ("H": MUTE)
17	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQCK)
18	/RST	I	Reset signal ("L": reset)
19	SMCK	O	System clock (f=4.2336MHz)
20	PMCK	O	Frequency division clock signal (Not used, open) ($f=\frac{1}{1.92}\times ck=88.2kHz$)
21	TRV	O	Traverse servo control

Pin No.	Mark	I/O Division	Function
22	TVD	O	Traverse drive signal
23	PC	O	Turntable motor drive signal ("L": ON)
24	ECM	O	Turntable motor drive signal (Forced mode)
25	ECS	O	Turntable motor drive signal (Servo error signal)
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive signal output
28	FOD	O	Focus drive signal output
29	VREF	I	D/A drive output (TVD, ECS, TRD, FOD, FBAL, TBAL) normal voltage input terminal
30	FBAL	O	Focus balance adj. output
31	TBAL	O	Tracking balance adj. output
32	FE	I	Focus error signal (analog input)
33	TE	I	Tracking error signal (analog input)
34	RFENV	I	RF envelope signal
35	VDET	I	Oscillation det. signal ("H": det.)
36	OFT	I	Off frack signal ("H": Off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal ("L": detection)
39	BDO	I	Dropout detection signal ("H": dropout)
40	LDON	O	Laser power control ("H": ON)
41	TES	O	Tracking error shunt output ("H": dropout)
42	PLAY	O	Play signal ("H": play)

Pin No.	Mark	I/O Division	Function
43	WVEL	O	Double velocity status signal ("H": double)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	I	DSL bias terminal (Not used, open)
47	DSLF	I/O	DSL loop filter terminal
48	PLLF	I/O	PLL loop filter terminal
49	VCOF	I/O	VCO loop filter terminal (Not used, open)
50	$AV_{DD}2$	I	Power supply (analog circuit) terminal (2)
51	$AV_{SS}2$	—	GND (analog circuit) terminal
52	EFM	O	EFM signal (Not used, open)
53	PCK	O	PLL extract clock (f=4.3218MHz)
54	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)
55	SUBC	O	Sub-code serial output data (Not used, open)
56	SBCK	I	Sub-code serial output clock (Not used, open)
57	V_{SS}	—	GND terminal
58	X1	I	Crystal oscillator terminal (f=16.9344MHz)
59	X2	O	
60	V_{DD}	I	Power supply terminal
61	BYTCK	O	Byte clock signal
62	/CLDCK	O	Sub-code frame clock signal (f CLDCK=7.35kHz: Normal) (Not used, open)

Pin No.	Mark	I/O Division	Function
63	FCLK	O	Crystal frame clock (Not used, open)
64	IPFLAG	O	Interpolation flag terminal
65	FLAG	O	Flag terminal
66	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
67	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
68	DEMPH	O	De-emphasis ON signal ("H": ON)
69	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
70	/RST2	I	Reset terminal after "MASH" circuit
71	/TEST	I	Test terminal (Normal: "H")
72	$AV_{DD}1$	I	Power supply (analog circuit) terminal (1)
73	OUTL	O	
74	$AV_{SS}1$	—	GND (analog circuit) terminal (1)
75	OUTR	O	Rch audio signal
76	RSEL	I	Polarity direction control terminal of RF signal
77	CSEL	I	Frequency control terminal of crystal oscillator
78	PSEL	I	Test terminal (Normal: "L")
79	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336MHz)
80	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)

• IC602 (M50946-214SP): System control/FL drive

Pin No.	Mark	I/O Division	Function
1	VREF	I	Reference voltage (Power supply +5V)
2	F1	I	Spectrum analyzer control signal input 63Hz
3	F2	I	Spectrum analyzer control signal input 160Hz
4	F3	I	Spectrum analyzer control signal input 400Hz
5	F4	I	Spectrum analyzer control signal input 1kHz
6	F5	I	Spectrum analyzer control signal input 2.5kHz
7	F6	I	Spectrum analyzer control signal input 6.3kHz
8	F7	I	Spectrum analyzer control signal input 12.5kHz
9	KEY	I	Key signal input (8 bit A/D singal)
10 ∫ 15	D~A, D10, D11	O	Segment signal output for FL
16	MUTE B	O	Muting singal output
17	MUTE −12dB	O	−12dB Muting control signal output for electronic volume
18	GEDATA	O	G, EQ control signal ouput
19	GECLK	O	G, EQ clock signal output
20	KARAOKE	O	KARAOKE control signal output
21	$\overline{SUR}$	O	Surround control signal output
22	BASS	O	Super bass control signal output

Pin No.	Mark	I/O Division	Function
23	PWM	O	PWM control signal output for electronic volume
24	$\overline{HOLD}$	I	Power off detection input "L level"=OFF
25	$\overline{REMOTE}$	I	Remote control receiving signal input
26	CNV_{SS}	—	Connected to GND
27	$\overline{RESET}$	I	Reset control signal input
28	X IN	I	Ceramic Oscillator connection (input)
29	X OUT	O	Ceramic Oscillator connection (output)
30	XC IN	I	Connected to GND
31	XC OUT	O	Not used, open
32	V_{SS}	I	GND terminal
33	NC	—	Not used
34	T.REC	I	Tape recording control signal input
35	T.PLAY	I	Tape playback control signal input
36, 37	VR0, VR1	I	Level encoder volume control signal input
38	−Vp	I	Pull down voltage input
39 ∫ 62	SR1~SR12 SL1~SL12	O	Segment signal output for FL
63	AV_{CC}	I	Power supply terminal
64	V_{CC}	I	Power supply terminal

• IC701 (AN8802SCE1V): Servo amp

Pin No.	Mark	I/O Division	Function
1	PDAD	I	Photo detector Bch input without delay
2	PDA	I	Photo detector Ach input without delay
3	LPD	I	Laser PD signal
4	LD	O	Laser power auto control output
5	AMPI	I	RF amp terminal
6	V_{CC}	I	Power supply terminal
7	AMPO	O	RF amp signal
8	CAGC	I	AGC detection capacitor input
9	ARF	O	RF signal
10	CENV	I	RF detect capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	GND	—	GND terminal
13	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
14	TES	I	Tracking error shunt input ("H": shunt)
15	PLAY	I	Play signal ("H": ON, "L": OFF)
16	WVEL	I	Double velocity ("H": double, "L": single)

Pin No.	Mark	I/O Division	Function
17	BDO	O	Dropout detection control
18	/RFDET	O	RF det. signal ("L": det.)
19	CROSS	O	Tracking error zero cross output
20	OFTR	O	Off track detection ("H": det.)
21	VDET	O	Oscillation det. signal ("H": det.)
22	ENV	O	Envelope output terminal
23	TEBPF	I	Oscillation detect input terminal
24	TE	O	Tracking error signal
25	FE	O	Focusing error signal
26	PTO	O	Potention amp output
27	PTI	I	Potention amp input
28	TBAL	I	Tracking balance adj. input
29	FBAL	I	Focus balance adj. input
30	VREF	O	Reference voltage output
31	PDB	I	Photo detector Ach input with delay
32	PDBD	I	Photo detector Bch input with delay

• IC703 (AN8389SE1): Focus coil/tracking coil/traverse motor/spindle motor drive

Pin No.	Mark	I/O Division	Function
1	V_{CC}	I	Power supply terminal
2	VREF	I	Reference voltage input
3	IN4	I	Motor driver (4) input
4	IN3	I	Motor driver (3) input
5	GND	—	GND terminal
6	NC	—	No connection
7	NRESET	I	Reset terminal
8	GND	—	GND terminal
9	IN2	I	Motor driver (2) input
10	PC2	I	PC2 (power cut) input
11	IN1	I	Motor driver (1) input
12	PC1	I	PC1 (power cut) input (Not used, open)

Pin No.	Mark	I/O Division	Function
13	$PV_{CC}1$	I	Driver power supply (1)
14	PGND1	—	Driver GND terminal (1)
15	D1−	O	Motor driver (1) output terminal (−)
16	D1+	O	Motor driver (1) output terminal (+)
17	D2−	O	Motor driver (2) output terminal (−)
18	D2+	O	Motor driver (2) output terminal (+)
19	D3−	O	Motor driver (3) output terminal (−)
20	D3+	O	Motor driver (3) output terminal (+)
21	D4−	O	Motor driver (4) output terminal (−)
22	D4+	O	Motor driver (4) output terminal (+)
23	PGND2	—	Driver GND terminal (2)
24	$PV_{CC}2$	I	Driver power supply (2)

• IC601 (M50754-186SP): FL drive

Pin No.	Mark	I/O Division	Function
1	V_{CC}	I	Power supply terminal
2 • 3	P65 • P64	O	Segment signal output for FL
4~7 • 8~15	P63~P60 • P27~P20	—	Not used, open
16	SRDY	I	Serial data (8 bit) input
17	CLK	I	Serial clock control signal input
18	SOUT	—	Not used, open
19 • 20	SIN • CS	I	8 bit data control signal input
21 ∫ 23	P32 ∫ P30	I/O	Not used, open
24	P51	I	Connected to GND
25	HOLD	I	Power off detection input "Level"=OFF

Pin No.	Mark	I/O Division	Function
26	CNV_{SS}	I	GND terminal
27	$\overline{RESET}$	I	Reset control signal input
28 • 29	X IN • X OUT	I	Ceramic oscillator connection (input)
		O	Ceramic oscillator connection (output)
30 • 31	XC IN • XC OUT	I	Connected to GND
		O	Not used, open
32	V_{SS}	I	GND terminal
33	NC	—	Not used
34 ∫ 37	P57 ∫ P54	—	Not used, connected to GND
38	−Vp	I	Pull down voltage input
39 ∫ 64	P51, P50 P17~P14 P47~P40 P13~P10 P07~P00	O	Segment signal output for FL

• IC951 (MND2410RLAE): System control

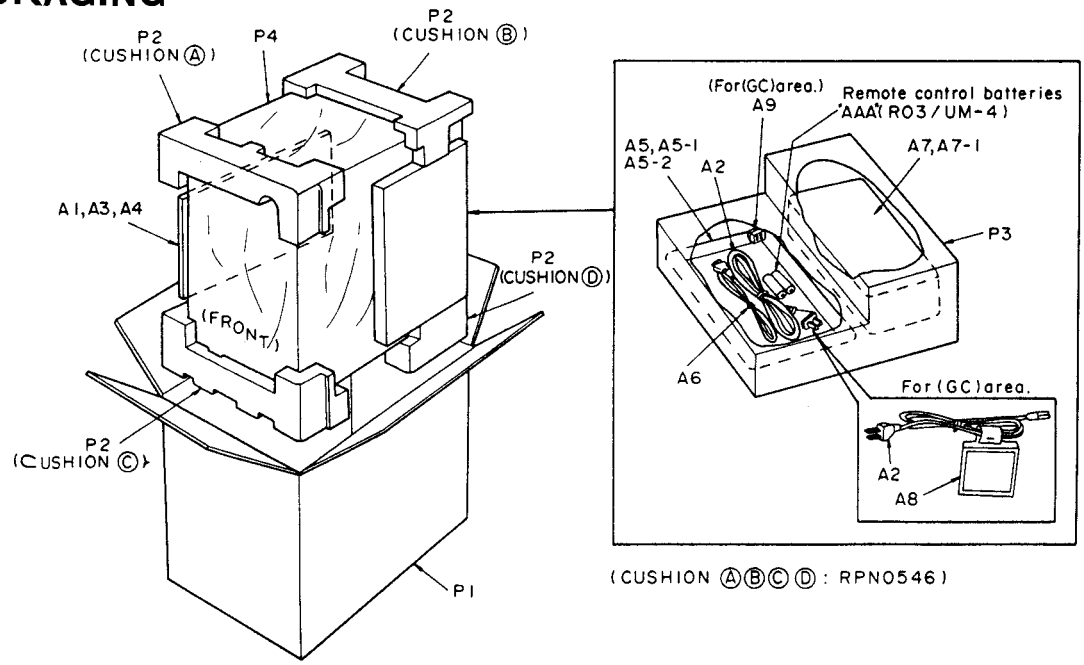
Pin No.	Mark	I/O Division	Function
1	V_{DD}	I	Power supply terminal
2 • 3	OSC 1 • OSC 2	I/O	Reference OSC terminal (connected to crystal oscillator 4MHz)
4	V_{SS}	—	GND terminal
5 • 6	XI • XO	I/O	Clock OSC terminal (connected to ceramic oscillator 32kHz)
7	VREF−	I	Reference voltage input (connected to GND)
8	ADIN7	I	Deck 2 Forward Rec. Inh. switch select input terminal
9	ADIN6	I	Deck 2 cassette half detection signal input "HIGH" level in half detection switch in ON mode. "LOW" level in half detection switch in OFF mode.
10	ADIN5	I	Deck 1 cassette half detection signal input "HIGH" level in half detection switch in ON mode. "LOW" level in half detection switch in OFF mode.

Pin No.	Mark	I/O Division	Function
11	ADIN4	—	Not used
12	ADIN3	I	Key control signal input (EDIT, TUNING, MODE, TITLE, DISPLAY, BAND, FM MODE)
13	ADIN2	I	Cassette operation control signal input
14	ADIN1	I	CD operation control signal input
15	ADIN0	I	Key control signal input (TIMER, SET, TAPE, SLEEP, CANCEL, TUNER)
16	VREF+	I	Reference voltage input terminal
17 • 18	JOGA • JOGB	I	JOG dial signal input
19 • 22	—	—	Not used, connected to resistor
20	MKDATA	O	Cassette deck control data output

Pin No.	Mark	I/O Division	Function
21	MKCLK	O	Cassette deck control clock signal output
23	ACLK	O	Audio control clock signal output
24	ADATA	O	Audio control data output
25	SPCLK	O	Not used, connected to resistor
26	PWRCNT	O	Output for voltage control signal
27	MUTE A	O	Output for muting control signal
28	VOLLIMIT	—	Not used
29	MBP1		
30	MBP2		
31	REMOCON IN	I	Remote control receiving signal input
32	BLKCK	I	Sub-code block clock signal (CD)
33	STATUS	I	CD start control signal input
34	CD RST	I	CD Reset control signal input
35	RST	I	Micro computer reset control signal input
36	MLD/ PLL CL	O	CD Process signal output and PLL tuner clock signal output
37	MDATA/ PLL CE	O	CD Process data signal output and PLL tuner strobe signal output
38	MCLK/ PLL DI	O	CD Process clock control signal output and PLL tuner data signal output
39	CLDCK	I	CD sub-code clock signal
40	SUBQ	I	CD sub-code data input
41	—	—	—
42	SYNC		

Pin No.	Mark	I/O Division	Function
43	CM	—	Connected to GND
44	TLOCK	I	Tracking signal input and tuner received monitor signal input
45	FLOCK	I	Focus servo clock signal and FM stereo received signal input
46	REST	I	Reset signal input
47	CD OPEN SW	I	CD open detection switch signal input
48	CD CLOSE SW	I	CD close detection switch signal input
49	SENSE	I	DISC sense signal input
50	HALT	I	Power down detection signal input
51	—	—	—
52	CS	O	8 Bit signal data output
53	DATA	O	8 Bit signal data output
54	CLK	O	Serial clock data signal output
55	T. PLAY	I	Playback control signal input
56	T. REC	I	Rec control signal input
57	DOT	O	Segment signal output
58 • 59	NC	—	—
60	$\overline{\text{SRDY}}$	I/O	8 Bit serial data in/output
61 ∫ 67	P56 ∫ P50	I	Reference voltage (BIAS) input
68 ∫ 100	—	—	—

■ PACKAGING



(CUSHION ⒶⒷⒸⒹ : RPN0546)

■ REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Remote Control Ass'y:
Supply period for three years from termination of production.
*Warning: This product uses a laser diode. Refer to caution statements on page 3.
*ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	AN7273W	IC, AM/FM IF AMP, DET. &AM MIX	
IC2	BA1332FT2	IC, FM MPX	
IC5	LM7001M-TE-L	IC, PLL FREQ. SYNTHESIZER	
IC101	M51167BFP-TB	IC, P. B EQ/REC AMP	
IC102	BA7755	IC, R/P SELECT	
IC103	CXA1102M-T4	IC, DOLBY NR	
IC104	MC14066BFR2	IC, DECK 1/2 SELECT	
IC105	BU2040F-T2	IC, SYSTEM CONTROL(12BIT)	
IC301, 302	MC14066BFR2	IC, INPUT SELECTOR	
IC303	MC74HC04AFL2	IC, INPUT SELECTOR CONTROL	
IC304	BA4558FDXT1	IC, BUFFER AMP	
IC305	AN6554NSFE2	IC, SURR/KARAOKE	
IC306	BA4558FDXT1	IC, MIC MIXING	
IC307	BU2040F-T2	IC, SYSTEM CONTROL	
IC401, 402	AN7337NS-E2	IC, G. EQUALIZER AMP	
IC403	LC7523M-TLM	IC, BAND LEVEL CONTROL	
IC501	SVI3101D	IC, POWER AMP	⚠
IC502	BA3920	IC, POWER SUPPLY CONT.	
IC503	M5218AP	IC, MIC AMP	
IC601	M50754-186SP	IC, FL DRIVE	
IC602	M50946-214SP	IC, FL DRIVE	
IC603	TC74HC42AP	IC, DECODER(FL DRIVE)	
IC604	XR-1091ECP	IC, SPECTRUM ANALYZER B. P. F	
IC605	BA4558DX	IC, ACTIVE FILTER	
IC790	TA7291S	IC, MOTOR DRIVE	
IC801	M51131L-702	IC, ATTENUATOR(E. VOLUME)	
IC802	BA4558FDXT1	IC, V. BASS AMP	
IC871	AN6558SFE2	IC, PHONO EQ AMP	(E, EG)
IC951	MND2410RLAE	IC, SYSTEM CONT.	
IC971	DN6851ALB	IC, HALL(DECK1)	
IC971A	DN6851ALB	IC, HALL(DECK2)	
		TRANSISTOR(S)	
Q1	2SC2785FE	TRANSISTOR	
Q2	2SC2785FE	TRANSISTOR	
Q3, 4	2SC2787L	TRANSISTOR	
Q5	2SC3311A-Q	TRANSISTOR	
Q8, 9	2SC3311A-Q	TRANSISTOR	
Q19	2SD1862QRTV6	TRANSISTOR	⚠
Q81, 82	UN411FTA	TRANSISTOR	
Q83	2SC3311A-Q	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q84	2SA1309A-R	TRANSISTOR	
Q85-88	2SC3311A-Q	TRANSISTOR	
Q101-104	2SJ164PQRTA	TRANSISTOR	
Q105-114	UN4210-S	TRANSISTOR	
Q115, 116	2SD1450STTA	TRANSISTOR	
Q117	UN4213	TRANSISTOR	
Q151, 152	UN4210-S	TRANSISTOR	
Q153, 154	2SC1740SLNET	TRANSISTOR	
Q171	2SD1450STTA	TRANSISTOR	
Q172, 173	UN4210-S	TRANSISTOR	
Q174	2SC3311R	TRANSISTOR	
Q175, 176	2SD1450RTA	TRANSISTOR	
Q179, 180	2SC2784FETA	TRANSISTOR	
Q201	2SD965Q	TRANSISTOR	
Q202	2SK381BCDTA	TRANSISTOR	
Q203	2SD965Q	TRANSISTOR	
Q204	2SK381BCDTA	TRANSISTOR	
Q205	UN4210-S	TRANSISTOR	
Q206, 207	KSB564ACYGTA	TRANSISTOR	
Q208, 209	UN4215	TRANSISTOR	
Q210-217	2SC3311A-Q	TRANSISTOR	
Q218	UN4111	TRANSISTOR	
Q219, 220	UN411FTA	TRANSISTOR	
Q303, 304	2SD1450QRSTA	TRANSISTOR	
Q305, 306	2SD1450QRSTA	TRANSISTOR	(GC, GN)
Q307, 308	2SC3311A-Q	TRANSISTOR	
Q309, 310	2SD1450QRSTA	TRANSISTOR	
Q311	UN4111	TRANSISTOR	
Q312	UN4111TA	TRANSISTOR	(GC, GN)
Q313	UN4111	TRANSISTOR	
Q314, 315	UN4112	TRANSISTOR	
Q316	UN4215	TRANSISTOR	
Q317	UN4212TA	TRANSISTOR	
Q320-322	UN411FTA	TRANSISTOR	
Q323, 324	2SJ164PQRTA	TRANSISTOR	
Q451-454	2SC3311A-Q	TRANSISTOR	
Q455	2SD2137PQTA	TRANSISTOR	⚠
Q501	KSB564ACYGTA	TRANSISTOR	
Q503	2SD2137PQTA	TRANSISTOR	⚠
Q504	2SC3311A-Q	TRANSISTOR	
Q505	2SD1762EF	TRANSISTOR	⚠
Q506	2SB1357EFTA	TRANSISTOR	⚠
Q507	2SC3311A-Q	TRANSISTOR	⚠
Q508	KSB564ACYGTA	TRANSISTOR	⚠
Q509	2SC3311A-Q	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q519	2SB1185EF	TRANSISTOR	⚠
Q520	KSD471ACYGTA	TRANSISTOR	⚠
Q521	DTB123YSTP	TRANSISTOR	
Q601, 602	UN4113TA	TRANSISTOR	
Q604-612	UN4111	TRANSISTOR	
Q613	UN4212TA	TRANSISTOR	
Q615	UN4213	TRANSISTOR	
Q616, 617	2SC3311A-Q	TRANSISTOR	
Q618, 619	UN411FTA	TRANSISTOR	
Q801, 802	2SK381BCDTA	TRANSISTOR	
Q803, 804	2SC3312R	TRANSISTOR	
Q805, 806	2SC3311A-Q	TRANSISTOR	
Q807, 808	2SD1450QRSTA	TRANSISTOR	
Q810	UN4114TA	TRANSISTOR	
Q811	UN4111	TRANSISTOR	
Q812	UN4212TA	TRANSISTOR	
Q951	UN4213	TRANSISTOR	
		DIODE(S)	
D1-3	1SS254TA	DIODE	
D12	1SS254TA	DIODE	
D14	MA4062MTA	DIODE	⚠
D171	1SS254TA	DIODE	
D172	RVDMTZ4R7BTA	DIODE	
D173	1SS254TA	DIODE	
D174	MA4030MTA	DIODE	
D201, 202	1SS254TA	DIODE	
D301-319	1SS254TA	DIODE	
D401	MA4056MTA	DIODE	⚠
D402	MA4043M	DIODE	⚠
D403	1SS254TA	DIODE	
D451	MA4082MTA	DIODE	⚠
D502	MA4062-H	DIODE	⚠
D503-506	RL1N4003N02	DIODE	⚠
D507, 508	MA4120	DIODE	⚠
D509	1SS254TA	DIODE	
D510	MA167	DIODE	⚠
D511-514	GP15GLF	DIODE	⚠
D515	RL1N4003N02	DIODE	⚠
D516	MA4270	DIODE	⚠
D517	RL1N4003N02	DIODE	⚠
D518	MA4300M	DIODE	⚠
D519	1SS254TA	DIODE	
D520	MA4150LTA	DIODE	⚠
D521, 522	1SS254TA	DIODE	
D523	MA4051-L	DIODE	⚠
D524-526	1SS254TA	DIODE	
D601, 602	1SS254TA	DIODE	
D603	1SS291TA	DIODE	
D604	1SS254TA	DIODE	
D605	MA4047MTA	DIODE	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
D606, 607	MA4056MTA	DIODE	⚠
D608	1SS254TA	DIODE	
D821, 822	1SS254TA	DIODE	
D951	1SS291TA	DIODE	
D952-954	1SS254TA	DIODE	
D971	RVD1SS133TA	DIODE(DECK1)	
D971A	RVD1SS133TA	DIODE(DECK2)	
		IC PROTECTOR(S)	
ICP401	SRUN10	IC PROTECTOR	⚠
		VARIABLE RESISTOR(S)	
VR1	EVNDCAA03BS3	V.R, FM MPX VCO ADJ.	
VR101-104	EVNDCAA03B24	V.R, PLAYBACK GAIN ADJ.	
VR201	EVNDCAA03B53	V.R, TAPE SPEED ADJ. (DECK1)	
VR202	EVNDCAA03B14	V.R, TAPE SPEED ADJ. (DECK2)	
VR203	EVNDCAA03BS3	V.R, TAPE SPEED ADJ. (DECK2)	
VR601	EVQWPA02224B	V.R, AI JOG ADJ.	
VR602	EVQWQAF2524B	V.R, VOLUME ADJ.	
VR901	EVJ06CFA5B13	V.R, MIC VOLUME ADJ.	
		COMPONENT COMBINATION(S)	
Z1	ENV17283G1Y	FM FRONT END	
Z2	RLI2Z003M-T	AM IFT	
Z101-103	EXBF6L306SYV	COMPONENT COMBINATION	
Z901	RCDHC-278	REMOTE SENSOR	
		COIL(S)	
L1	ELESNR22MA	COIL	
L2	RLA6Z002M-T	COIL	
L3	ELEXT100KA9	COIL	
L4	RLQZPR68KT-Y	COIL	
L5	ELESNR22MA	COIL	
L91	ELEXT1R0KA9	COIL	
L92	SLM1B10M-1M	COIL	
L93, 94	RLM2B003M-K	COIL	
L101, 102	RLM9B002-1M	COIL	
L103, 104	RLM2B005-1M	COIL	
L201	RLO8C002M-T	COIL	
L202	RLQZB470KT-D	COIL	
L501	RLQZ600M-W	COIL	(E, EG, GN) ⚠
L503, 504	SLQY07G-40	COIL	(E, EG, GN)
L601-604	ELEXT4R7KA9	COIL	
L605, 606	ELEXT101KA9	COIL	
L951	ELEXT3R3KA9	COIL	
L953-956	ELEXT2R2KA9	COIL	
		TRANSFORMER(S)	

Ref. No.	Part No.	Part Name & Description	Remarks
T1	RL14B012M-Z	FM DET	
T2	RL14B013M-Z	FM DET	
T501	RTP1M5B007	POWER TRANSFORMER	(E, EG, GN) ⚠
T501	RTP1M5C005	POWER TRANSFORMER	(GC) ⚠
		FILTER(S)	
CF201	RLFFETNGA01L	FILTER	
CF202	RLFFETNGA02L	FILTER	
		OSCILLATOR(S)	
X1	SVQ49U722-S	OSCILLATOR(7.2MHz)	
X601, 602	EF0GC6004T4	CERAMIC OSCILLATOR(6MHz)	
X951	EF0GC4004A4	CERAMIC OSCILLATOR(4MHz)	
X952	RSXD32K7F02	OSCILLATOR(32KHz)	
		DISPLAY TUBE	
FL601	RSL0107-F	DISPLAY TUBE	
FL602	RSL0140-F	DISPLAY TUBE	
		SWITCH(ES)	
S501	SSR187-1	SW, VOLTAGE ADJUSTMENT	⚠
S790	RSH1A005	SW, CLOSE DETECTOR	
S791	RSH1A005	SW, OPEN DETECTOR	
S901	EVQ21405R	SW, CD EDIT	
S902	EVQ21405R	SW, TUNING MODE	
S903	EVQ21405R	SW, FM MODE/B.P.	
S904	EVQ21405R	SW, DISPLAY(SPECTRUM)	
S905	EVQ21405R	SW, BAND, ALLOCATION	
S906	EVQ21405R	SW, CLOCK/TIMER	
S907	EVQ21405R	SW, SET	
S908	EVQ21405R	SW, CANCEL	
S909	EVQ21405R	SW, POWER	
S910	EVQ21405R	SW, SLEEP	
S911	EVQ21405R	SW, TAPE	
S912	EVQ21405R	SW, TUNER	
S913	EVQ21405R	SW, PHONO	(E, EG)
S913	EVQ21405R	SW, DAT	(GC, GN)
S914	EVQ21405R	SW, REC TIMER	
S915	EVQ21405R	SW, PLAY TIMER	
S916	EVQ21405R	SW, CD	
S917	EVQ21405R	SW, KARAOKE	
S918	EVQ21405R	SW, SURROUND	
S919	EVQ21405R	SW, V. BASS	
S920	EVQ21405R	SW, EQ ON/FLAT, DEMO	
S921	EVQ21405R	SW, EQ MODE, FIXED, USER	
S922	EVQ21405R	SW, EQ LEVEL DOWN	
S923	EVQ21405R	SW, EQ LEVEL UP	

Ref. No.	Part No.	Part Name & Description	Remarks
S924	EVQ21405R	SW, DISPLAY	
S925	EVQ21405R	SW, VOL. PRESET	
S926	EVQ21405R	SW, REV. MODE	
S927	EVQ21405R	SW, COUNTER RESET	
S928	EVQ21405R	SW, DOLBY NR	
S929	EVQ21405R	SW, REC PAUSE	
S930	EVQ21405R	SW, NORMAL EDIT	
S931	EVQ21405R	SW, HIGH EDIT	
S932	EVQ21405R	SW, STOP	
S933	EVQ21405R	SW, REW	
S934	EVQ21405R	SW, REV. PLAY	
S935	EVQ21405R	SW, FWD. PLAY	
S936	EVQ21405R	SW, FF	
S937	EVQ21405R	SW, DECK1/2	
S938	EVQ21405R	SW, STOP/CLEAR	
S939	EVQ21405R	SW, PLAY	
S940	EVQ21405R	SW, PAUSE	
S941	EVQ21405R	SW, F. SKIP	
S942	EVQ21405R	SW, R. SKIP	
S943	EVQ21405R	SW, OPEN/CLOSE	
S971	RSH1A89ZD-U	SW, DECK1 MODE	
S971A	RSH1A89ZD-U	SW, DECK2 MODE	
S972	RSH1A90YC-U	SW, DECK1 HALF	
S972A	RSH1A90YC-U	SW, DECK2 HALF	
S973	RSH1A90YC-U	SW, DECK1 ATS/CrO2	
S973A	RSH1A90YC-U	SW, DECK2 R. REC INH.	
S974	RSH1A90YC-U	SW, DECK2 F. REC INH.	
S975	RSH1A90YC-U	SW, DECK2 ATS/CrO2	
S976	RSH1A90YC-U	SW, DECK2 ATS/METAL	
		RELAY(S)	
RLY501	RSY0013M-0	RELAY	⚠
		CONNECTOR(S) AND SOCKET(S)	
CN101	RJS9T4ZA	SOCKET(9P)	
CN103	RJS9T4ZA	SOCKET(9P)	
CN201, 202	RJS1A1704	SOCKET(4P)	
CN203	RJS7T4ZA	SOCKET(7P)	
CN204, 205	SJSD1005	SOCKET(10P)	
CN206	RJS1A1704	SOCKET(4P)	
CN501, 502	RJU005A012	CONNECTOR(12P)	
CN505	RJS8T4ZA	SOCKET(8P)	
CN601	SJS50581BB	SOCKET(5P)	
CN603	SJS50581BB	SOCKET(5P)	
CN604	RJU005A012	SOCKET(12P)	
CN605-607	RJU003K010M1	SOCKET(10P)	
CN702	RJS1A6823	SOCKET(23P)	
CN504A1	RJS1A1705	SOCKET(5P)	
CN504A2	RJS1A1704	SOCKET(4P)	
CN504B1	RJS1A1705	SOCKET(5P)	

Ref. No.	Part No.	Part Name & Description	Remarks
CN504B2	RJS1A1704	SOCKET(4P)	
CP101	RJP5G18ZA	CONNECTOR(5P)	
CP102	SJTD413	CONNECTOR(4P)	
CP501, 502	RJT005W012M1	CONNECTOR(12P)	
CP601	SJT30549BB1	CONNECTOR(5P)	
CP603	SJT30549BB1	CONNECTOR(5P)	
CP604	RJT005W012M1	CONNECTOR(12P)	
CP605-607	RJT003K010-1	CONNECTOR(10P)	
CP790	EMCS0660MT6	CONNECTOR(6P)	
CP790A	RJP6G17ZA	CONNECTOR(6P)	
		GND PLATE(S)	
E201	SNE1004-1	GND PLATE	
E501	SNE1004-1	GND PLATE	
		FUSE HOLDER(S)	
FC1, 2	EYF52BC	FUSE HOLDER	
FC3, 4	EYF52BC	FUSE HOLDER	(GC)
		JACK(S) & TERMINAL(S)	
JK101	RJH4202M	ANT TERMINAL	(E, EG)
JK101	RJH4405-1M	ANT TERMINAL	(GC, GN)
JK271	RJJ1D25ZA-C	MIC JACK	
JK301	SJF3069-5N	DAT TERMINAL	
JK501	RJR0054	SPEAKERS TERMINAL	
JK502	SJF3068-6N	SURROUND TERMINAL	
JK503	SJS9236	AC INLET	(E, EG, GC)⚠
JK503	SJSD16	AC INLET	(GN)⚠
JK521	RJJD7S2YA-C	HEADPHONES JACK	
		FLAT CABLE(S)	
W205	RWJ5710230QQ	FLAT CABLE(10P)	
W206	RWJ1804190KQ	FLAT CABLE(4P)	
W505	RWJ4308330KQ	FLAT CABLE(8P)	
W604	RWJ1803065KK	FLAT CABLE(3P)	
W606, 607	RWJ1812100CC	FLAT CABLE(12P)	
		FUSE(S)	
F1	XBA2C08TB0	FUSE, 250V, T800mA	⚠
F2	XBA2C20TB0	FUSE, 250V, T2A	(GC)⚠
		<SERVO P.C.B.>	
		INTEGRATED CIRCUIT(S)	
IC701	AN8802SCE1V	IC, SERVO AMP	
IC702	MN662271RA	IC, SERVO PROCESSOR	
IC703	AN8389SE1	IC, MOTOR DRIVE	

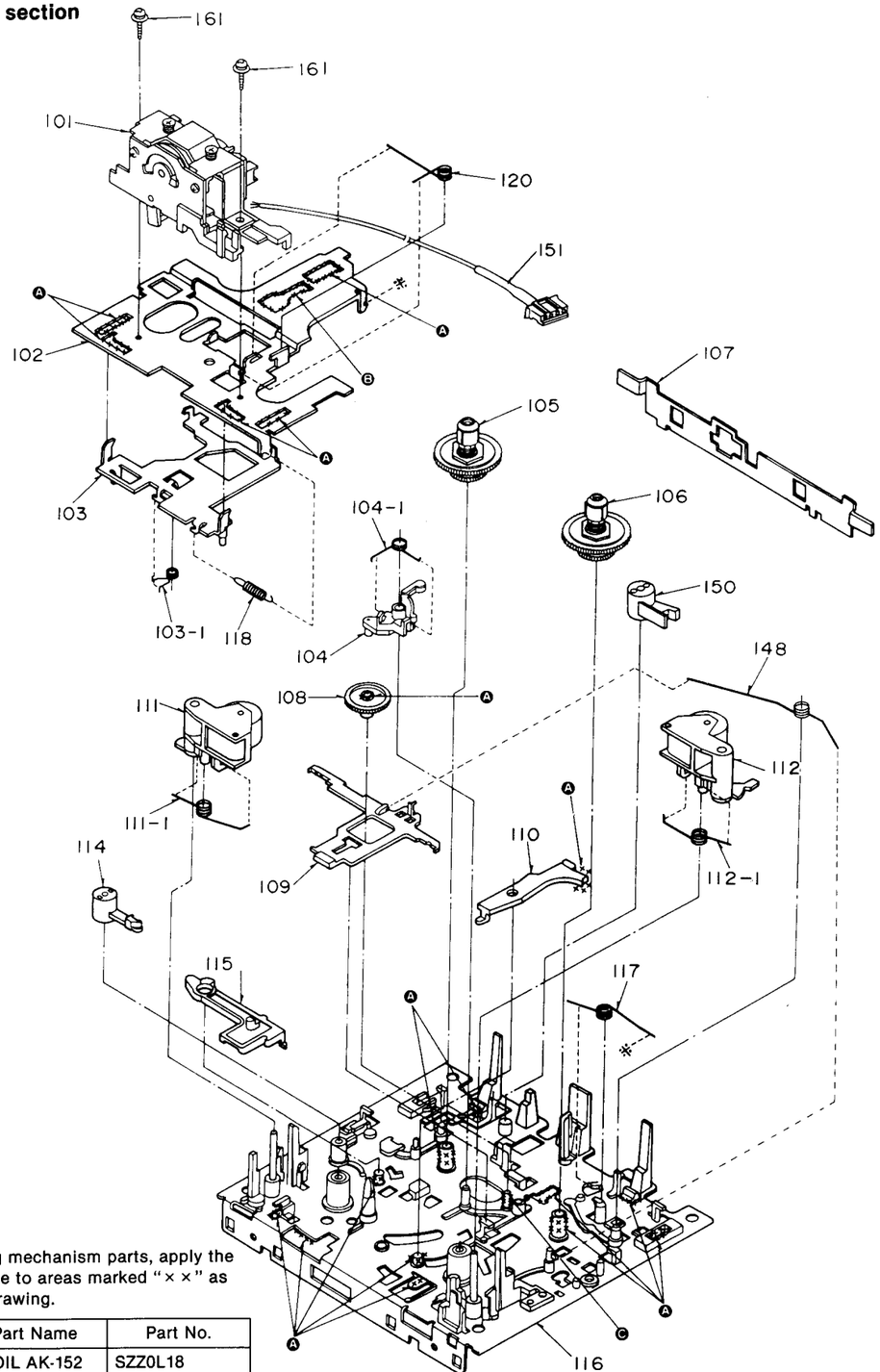
Ref. No.	Part No.	Part Name & Description	Remarks
		TRANSISTOR(S)	
Q701	2SB709S	TRANSISTOR	
		VARIABLE RESISTOR(S)	
VR701	EVNDXAA00B14	V.R, BEST EYE ADJUSTMENT	
		OSCILLATOR(S)	
X701	RSXZ16M9M02T	OSCILLATOR(16.9344MHz)	
		SWITCH(ES)	
S701	RSM0006-P	SW, REST DETECTOR	
		CONNECTOR(S) AND SOCKET(S)	
CN701	RJU035T016-1	CONNECTOR(16P)	
CN702A	RJS1A6723-1Q	SOCKET(23P)	
		CASSETTE MECHANISM	
(DECK 1)			
101	RXQ0051-1	HEAD BLOCK(PLAY)	
102	RUA793ZF	HEAD BASE	
103	RZLAR300A	ROD	
103-1	RUW143ZA	SPRING	
104	1UB0089ZA	ARM	
104-1	RUW148ZA	SPRING	
105	1DM00182B	REEL TABLE(R)	
106	1DM00172B	REEL TABLE(F)	
107	RML0069-1	LEVER	
108	RDG5772ZC	GEAR	
109	RUB508ZB	BRAKET ROD	
110	RUB506ZB	LEVER	
111	1UB0088ZB	PINCH ROLLER(R)	
111-1	RMB0310	SPRING	
112	1UB0087ZB	PINCH ROLLER(F)	
112-1	RUW140ZC	SPRING	
114	RNL1ZD	DAMPER ARM	
115	RUB503ZD	MAIN LEVER	
116	RFKRRSCH9N	CHASSIS ASS'Y	
117	RUW142ZA	SPRING	
118	RUD105ZA	SPRING	
120	RUW139ZA	SPRING	
121	RFM133ZA	DC MOTOR ASS'Y	
122	1UE0015ZB	PLUNGER	
123	RUB428ZE	MOVING IRON CORE	
124	RMA0101-1	ANGLE	
125	RMD5014ZC	ANGLE	

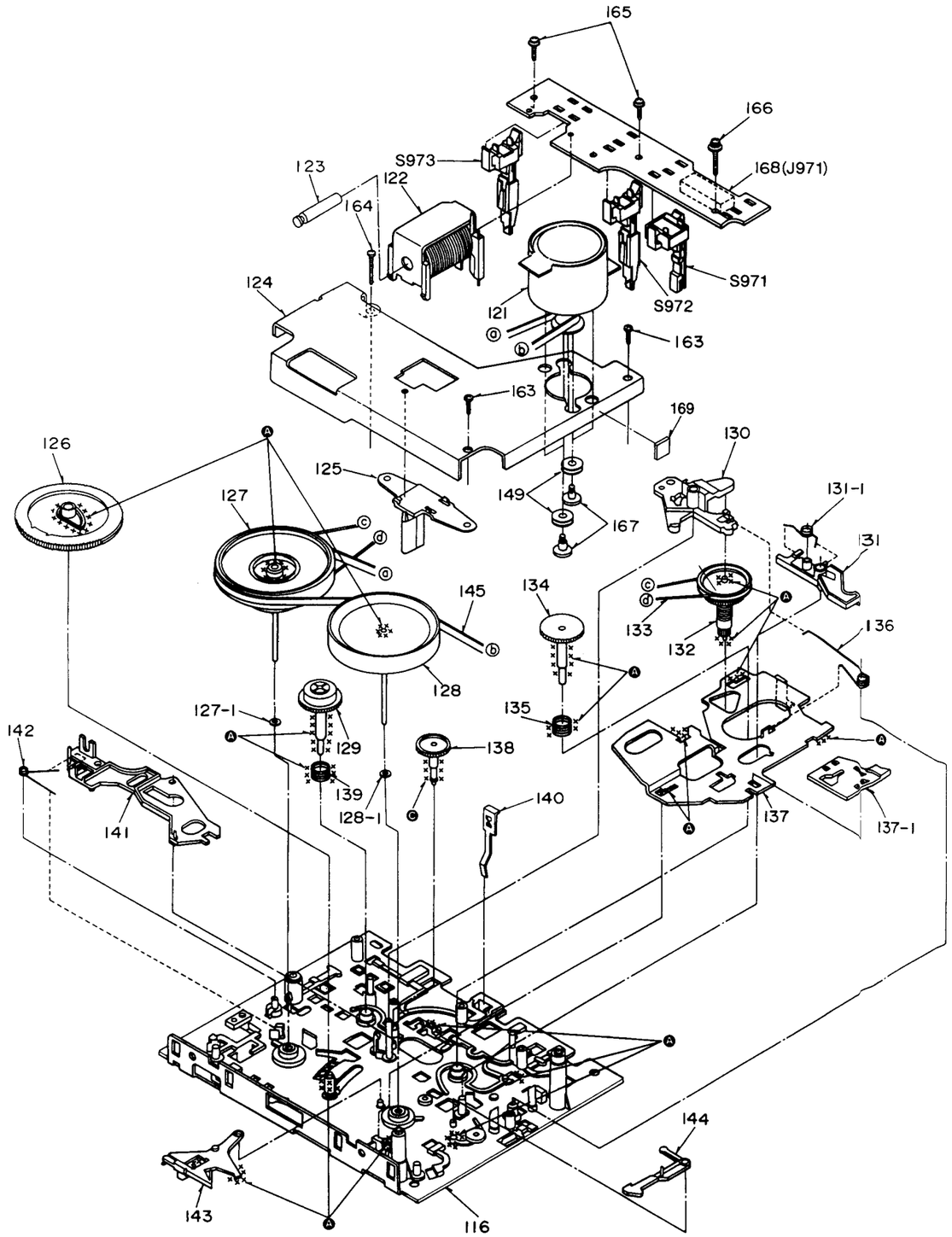
Ref. No.	Part No.	Part Name & Description	Remarks
126	RDG5927ZG	MAIN GEAR	
127	1DW0037ZB	FLYWHEEL(F)	
127-1	RNW139ZA	WASHER	
128	1DW0038ZB	FLYWHEEL(R)	
128-1	RNW138ZA	WASHER	
129	1DG0006ZB	REEL TABLE GEAR	
130	RUB513ZD	ARM	
131	1UB0091ZA	LEVER	
131-1	RUW146ZA	SPRING	
132	1DR0011ZB	MAIN PULLEY	
133	RDV90ZB	BELT	
134	RDG5769ZA	REEL TABLE GEAR	
135	RUQ111ZB	SPRING	
136	RUW145ZA	SPRING	
137	1UB0090ZA	ROD	
137-1	RUB512ZB	ROD	
138	RDG5773ZB	GEAR	
139	RUQ112ZA	SPRING	
140	RUS609ZC	TAPE PRESSURE SPRING	
141	RUB514ZC	LEVER	
142	RUW147ZA	SPRING	
143	RUB515ZA	LEVER	
144	RUB509ZA	LEVER	
145	RDV108ZA	CAPSTAN BELT	
148	RUW144ZA	SPRING	
149	RMG0102-1	RUBBER CUSHION	
150	RNL180ZB	DAMPER ARM	
151	REX0132	LEAD WIRE(4P)	
161	XTW2+6L	SCREW	
163	XTN26+7J	SCREW	
164	RHE52032A	SCREW	
165	XTW2+8S	SCREW	
166	XYC2+JF16	SCREW	
167	RHD26002	SCREW	
168(J971)	RJS7T7ZA	SOCKET(7P)	
169	SHG1654	SPACER	
(DECK 2)			
201	RXQ0007-2	HEAD BLOCK(REC/PLAYBACK)	
202	RUA793ZF	HEAD BASE	
203	RZLAR300A	ROD	
203-1	RUW143ZA	SPRING	
204	1UB0089ZA	ARM	
204-1	RUW148ZA	SPRING	
205	1DM0018ZB	REEL TABLE(R)	
206	1DM0017ZB	REEL TABLE(F)	
207	RML0069-1	LEVER	
208	RDG5772ZC	GEAR	
209	RUB508ZB	BRAKET ROD	
210	RUB506ZB	LEVER	
211	1UB0088ZB	PINCH ROLLER(R)	
211-1	RMB0310	SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
212	1UB0087ZB	PINCH ROLLER(F)	
212-1	RUW140ZC	SPRING	
214	RNL1ZD	DAMPER ARM	
215	RUB503ZD	MAIN LEVER	
216	RFKRRSCH9N	CHASSIS ASS'Y	
217	RUW142ZA	SPRING	
218	RUD105ZA	SPRING	
219	RUW144ZA	SPRING	
220	RUW139ZA	SPRING	
221	RFM133ZA	DC MOTOR	
222	1UE0015ZB	PLUNGER	
223	RUB428ZE	MOVING IRON CORE	
224	RMA0101-1	ANGLE	
225	RMD5014ZC	ANGLE	
226	RDG5927ZG	MAIN GEAR	
227	1DW0037ZB	FLYWHEEL(F)	
227-1	RNW139ZA	WASHER	
228	1DW0038ZB	FLYWHEEL(R)	
228-1	RNW138ZA	WASHER	
229	1DG0006ZB	REEL TABLE GEAR	
230	RUB513ZD	ARM	
231	1UB0091ZA	LEVER	
231-1	RUW146ZA	SPRING	
232	1DR0011ZB	MAIN PULLEY	
233	RDV90ZB	BELT	
234	RDG5769ZA	REEL TABLE GEAR	
235	RUQ111ZB	SPRING	
236	RUW145ZA	SPRING	
237	1UB0090ZA	ROD	
237-1	RUB512ZB	ROD	
238	RDG5773ZB	GEAR	
239	RUQ112ZA	SPRING	
240	RUS609ZC	TAPE PRESSURE SPRING	
241	RUB514ZC	LEVER	
242	RUW147ZA	SPRING	
243	RUB515ZA	LEVER	
244	RUB509ZA	LEVER	
245	RDV108ZA	CAPSTAN BELT	
249	RMG0102-1	RUBBER CUSHION	
250	RNL180ZB	DAMPER ARM	
251	REX0172	LEAD WIRE(5P)	
261	XTW2+6L	SCREW	
263	XTN26+7J	SCREW	
264	RHE52032A	SCREW	
265	XTW2+8S	SCREW	
266	XYC2+JF16	SCREW	
267	RHD26002	SCREW	
268(J971A)	RJS10T7ZA	SOCKET(10P)	

■ MECHANISM PARTS LOCATION

• DECK 1 section

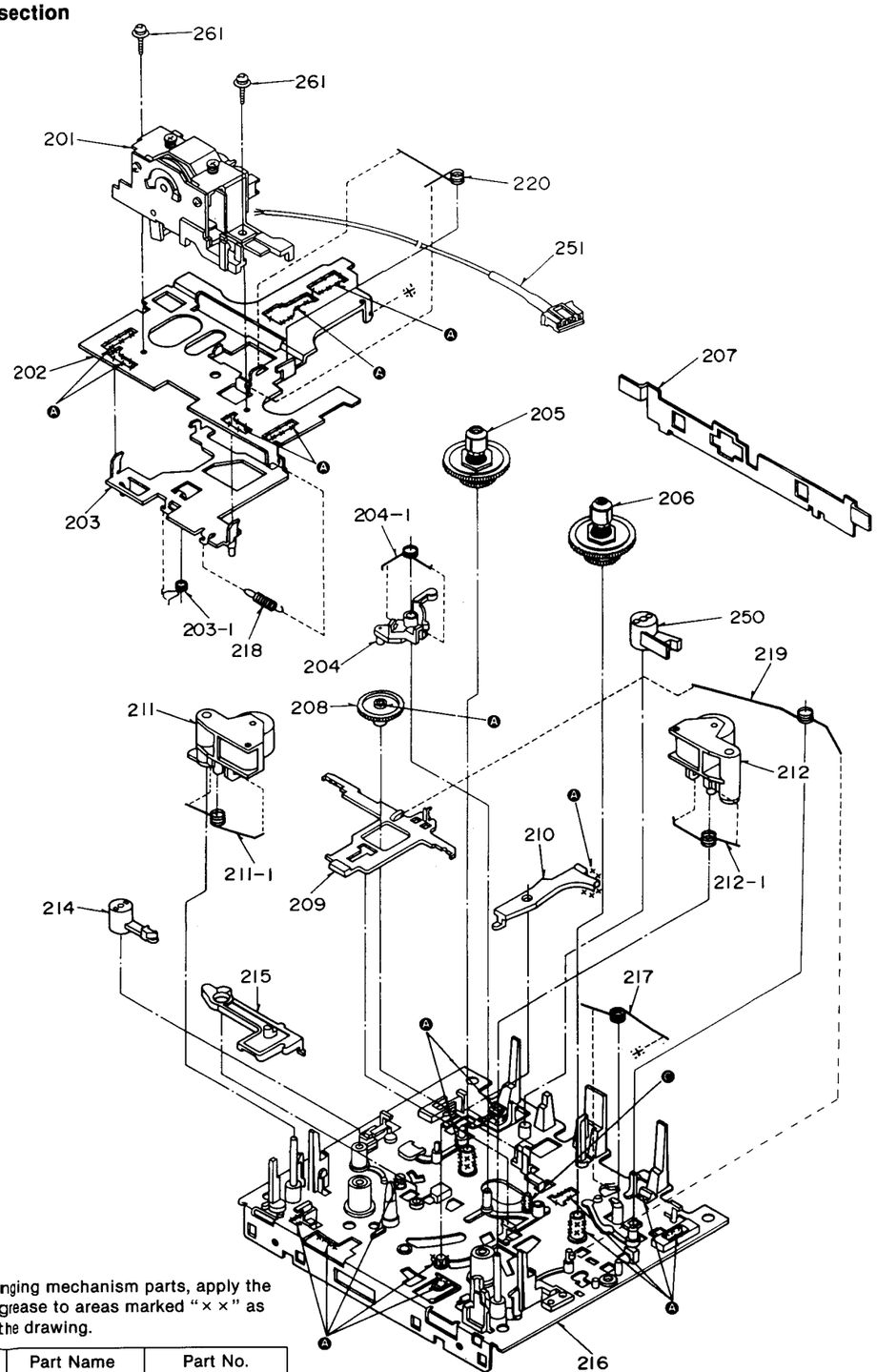


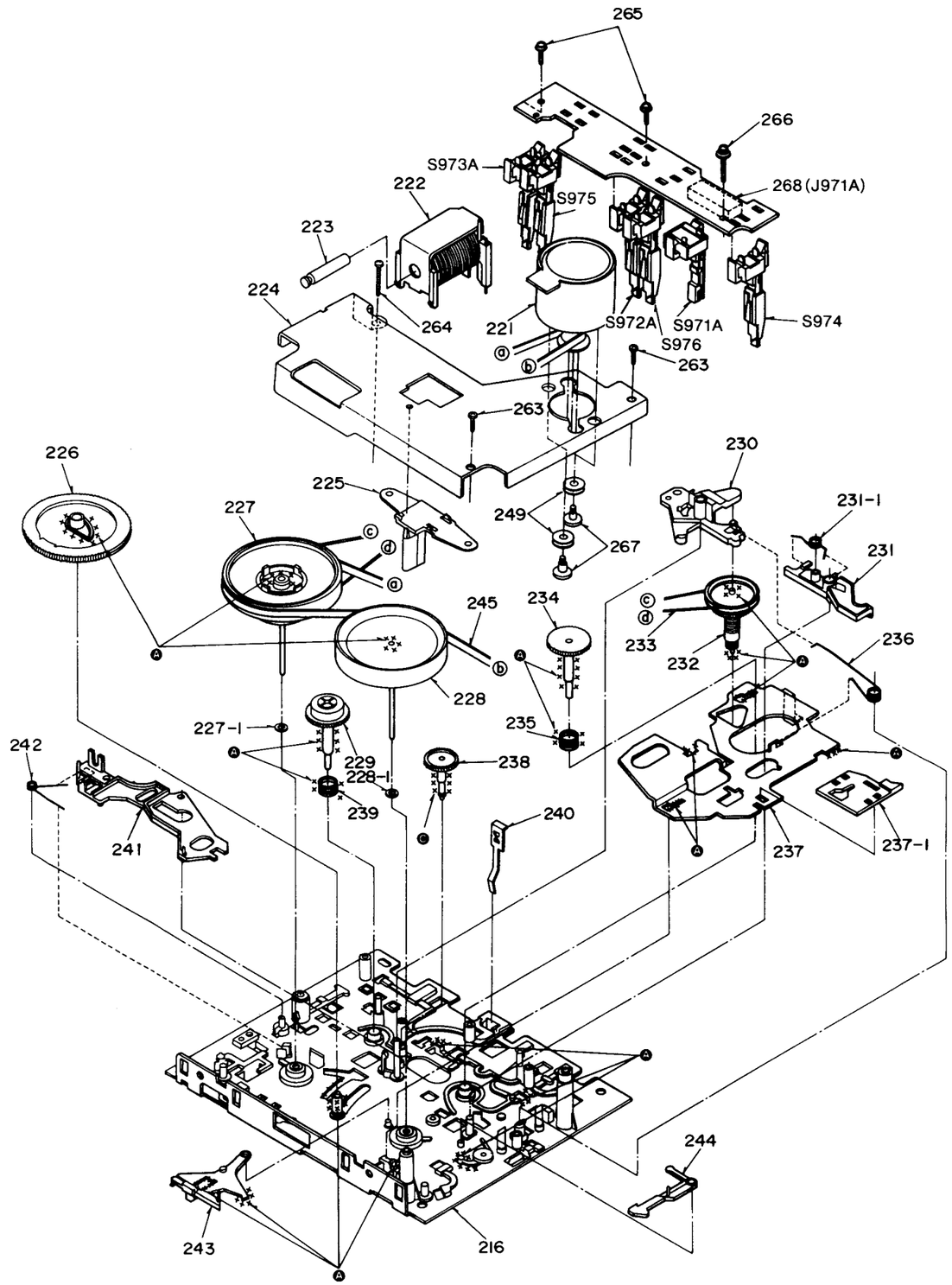


Note:
When changing mechanism parts, apply the specified grease to areas marked "× ×" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZ0L18
Ⓑ	FLOIL GP-501A	SZZ0L05
Ⓒ	FLOIL947P	RZZ0L02

• **DECK 2 section**





Note:
When changing mechanism parts, apply the specified grease to areas marked "× ×" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZ0L18
Ⓑ	FLOIL GP-501A	SZZ0L05
Ⓒ	FLOIL947P	RZZ0L02

■ REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Remote Control Ass'y:
Supply period for three years from termination of production.
*Warning: This product uses a laser diode. Refer to caution statements on page 3.
*ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden.

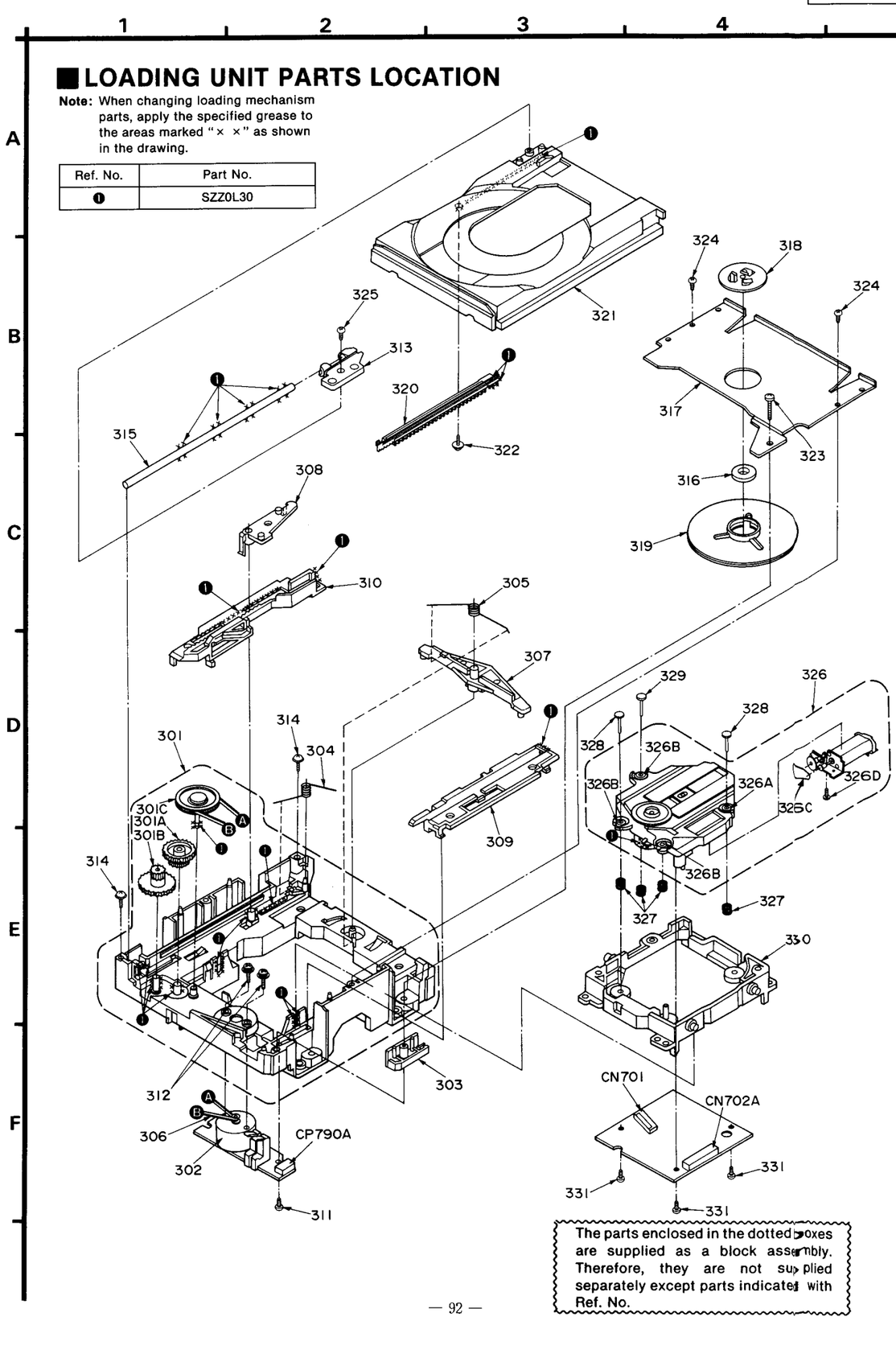
Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING UNIT	
301	RFKJLPG440BK	TRAVERSE CHASSIS ASS'Y	
301A	RDG0142	INTERMEDIATE GEAR	
301B	RDG0193	DRIVE GEAR(1)	
301C	RDP0041	INTERMEDIATE PULLEY	
302	REM0019	LOADING MOTOR ASS'Y	
303	RMA0339	TRAY HOLDER	
304	RME0063	LOCK LEVER SPRING	
305	RME0087	ASSISTANCE SPRING	
306	RMG0158	BELT	
307	RML0177	CONVERSION LEVER	
308	RML0178-1	LOCK LEVER	
309	RMM0059-1	SLIDE PLATE(2)	
310	RMM0079	SLIDE PLATE(1)	
311	XTN26+6G	SCREW	
312	XYN2+F6FZ	SCREW	
313	RDB0036	GUIDE SHAFT HOLDER	
314	RHD20010	SCREW	
315	RMU0046	GUIDE SHAFT	
316	RHM245ZA	MAGNET	
317	RFKNACH350EK	CLAMP PLATE ASS'Y	(E)
317	RFKNLPG440GC	CLAMP PLATE ASS'Y	(EG, GC, GN)
318	RMR0334	FIXED PLATE	
319	RXQ0123	MAGNET HOLDER ASS'Y	
320	RFKNLPG440-K	DRIVE GEAR(2) ASS'Y	
321	RGQ0088-K	DISC TRAY	
322	RHD20009-1	SCREW	
323	XTB3+25GFZ	SCREW	
324	XTN26+6G	SCREW	
325	XTN3+8JFZ	SCREW	
326	RAE0111Z	TRAVERSE DECK ASS'Y	
326A	SHG0112	FLOATING RUBBER(A)	
326B	SHG0113-1	FLOATING RUBBER(B)	
326C	RDV0023	BELT	
326D	SNS038	SCREW	
327	RME0109	FLOATING SPRING	
328	RMS0123-1	FIXED PIN(A)	
329	RMS0350	FIXED PIN(B)	
330	RMR0533-K	TRAVERSE CHASSIS	
331	XTV2+6G	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL	
P1	RPG1467	PACKING CASE	(E, EG)
P1	RPG1469	PACKING CASE	(GC, GN)
P2	RPN0546	CUSHION	
P3	RPQF0032	ACCESSORIES BOX	
P4	XZB70X85A01Z	PROTECTION BAG(UNIT)	
		ACCESSORIES	
A1	RFKSACH350EK	INSTRUCTION MANUAL ASS'Y	(E)
A1	RQT1791-B	INSTRUCTION MANUAL	(GN)
A1	RFKSACH350EG	INSTRUCTION MANUAL ASS'Y	(EG)
A1	RFKSACH350GC	INSTRUCTION MANUAL ASS'Y	(GC)
A2	RJA0019-2K	AC POWER SUPPLY CORD	(E, EG, GC)⚠
A2	SJA173	AC POWER SUPPLY CORD	(GN)⚠
A3	RQA0013	WARRANTY CARD	(E, EG)
A3	RQX7433ZA	WARRANTY CARD	(GN)
A4	RQCB0169	SERVICENTER LIST	
A5	SPB1163T	LW/MW LOOP ANTENNA	
A5-1	SMA233-1M	ANTENNA HOLDER	
A5-2	XTN3+10AFZ	MOUNTING SCREW	
A6	SSA270M	FM INDOOR ANTENNA	(E, EG)
A6	RSA0006	FM INDOOR ANTENNA	(GC, GN)
A7	RAK-SC001WH	REMOTE CONTROL TRANSMITTER	
A7-1	RKKD020-K	BATTERY COVER	
A8	RQLA0134	VOLTAGE CAUTION LABEL	(GC)
A9	SJP5213-2	POWER PLUG ADAPTOR	(GC)⚠

■ LOADING UNIT PARTS LOCATION

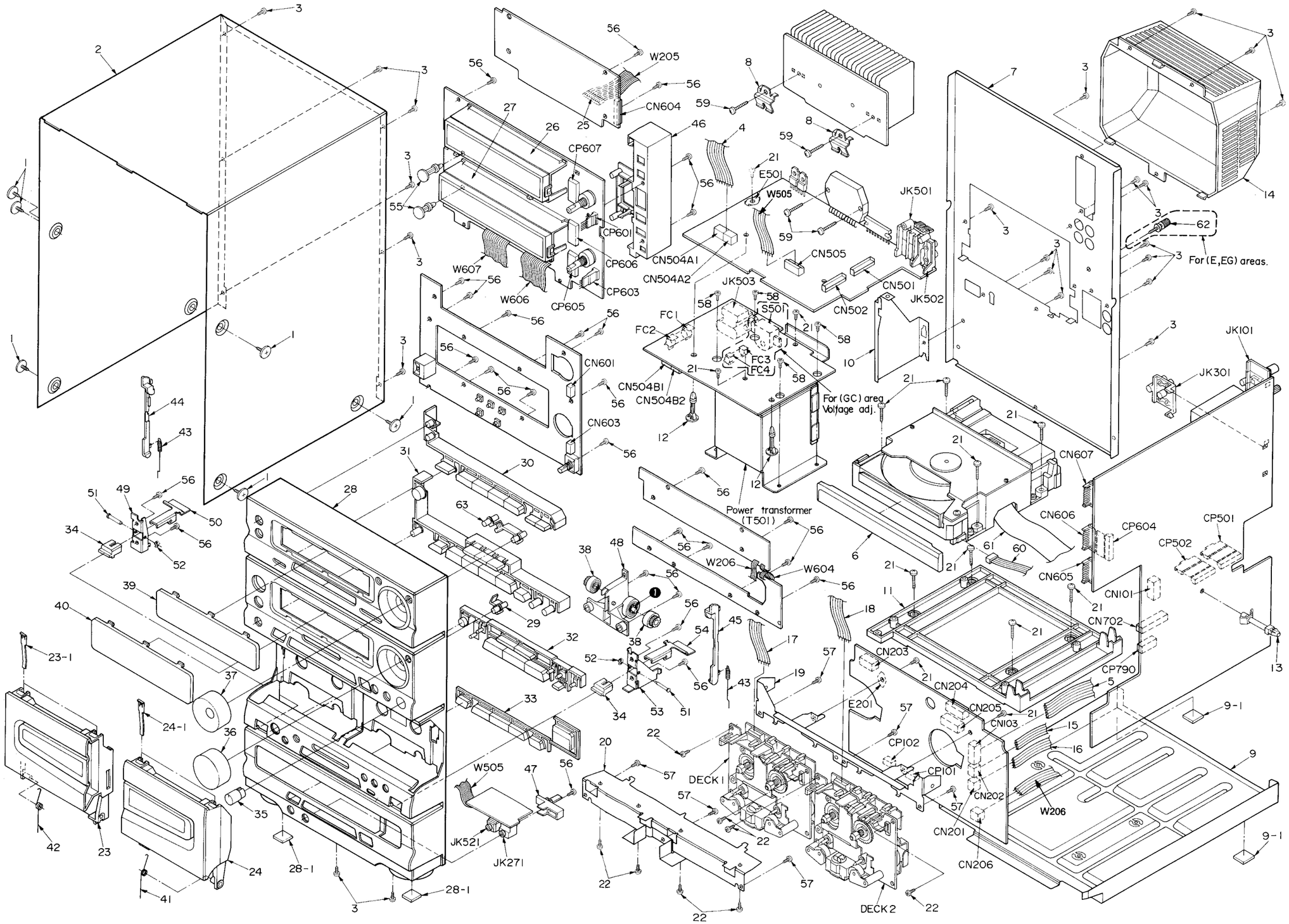
Note: When changing loading mechanism parts, apply the specified grease to the areas marked "× ×" as shown in the drawing.

Ref. No.	Part No.
❶	SZZ0L30



The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.

■ CABINET PARTS LOCATION



■ REPLACEMENT PARTS LIST

Notes: *The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RHD30007	SCREW	
2	RKM0181-K	CABINET	
3	XTBS3+8JFZ1	SCREW	
4	RWJ18090900Q	FLAT CABLE(9P)	
5	RWJ5709150Q	FLAT CABLE(9P)	
6	RGK0498-K	TRAY ORNAMENT	
7	RFKHACH350EK	REAR PANEL ASS'Y	(E)
7	RFKHACH350EG	REAR PANEL ASS'Y	(EG)
7	RFKHACH350GC	REAR PANEL ASS'Y	(GC)
7	RFKHACH350GN	REAR PANEL ASS'Y	(GN)
8	RMC0158	TRANSISTOR HOLDER	
9	RFKJACH55N-K	BOTTOM CHASSIS ASS'Y	
9-1	SHG1654	FOOT	
10	RMN0147	P.C.B. HOLDER	
11	RMR0479-W	MECHANISM HOLDER	
12	RMS0325	LOCKING SUPPORT	
13	RMS0340	P.C.B. SUPPORT	
14	RMV0041	HEAT SINK COVER	
15	RWJ18040800Q	FLAT CABLE(4P)	
16	RWJ1804180Q	FLAT CABLE(4P)	
17	RWJ5707120Q	FLAT CABLE(7P)	
18	RWJ5710120Q	FLAT CABLE(10P)	
19	RMA0611	MECH. COUPLING HOLDER(UPPER)	
20	RMA0612	MECH. COUPLING HOLDER(LOWER)	
21	XTB3+8JFZ	SCREW	
22	XTN26+6B	SCREW	
23	RFKLACH350AK	CASSETTE HOLDER(1) ASS'Y	
23-1	QBP2006A	HALF PUSH SPRING	
24	RFKLACH350BK	CASSETTE HOLDER(2) ASS'Y	
24-1	QBP2006A	HALF PUSH SPRING	
25	RHR197ZA	CABLE HOLDER	
26	RMN0198	FL HOLDER(TUNER)	
27	RMN0199	FL HOLDER(AMP)	
28	RFKGACH350EK	FRONT PANEL ASS'Y	
28-1	SHG1654	FOOT	
29	RGU0639-K	VOLUME PRESET BUTTON	
30	RGU0803-K	TUNER BUTTON	
31	RGU0804A-K	AMP BUTTON	(E, EG)
31	RGU0804-K	AMP BUTTON	(GC, GN)
32	RGU0805-K	CASSETTE DECK BUTTON	
33	RGU0806-K	CD PLAYER BUTTON	
34	RGU0812-K	EJECT BUTTON	
35	RGW0110-K	MIC VOLUME KNOB	
36	RGW0113-K2	VOLUME KNOB	
37	RGW0128-K	AI JOG KNOB	
38	RDG0145	DAMPER GEAR	

Ref. No.	Part No.	Part Name & Description	Remarks
39	RKW0242-Q	TUNER(FL) WINDOW	
40	RKW0243-Q	AMP(FL) WINDOW	
41	RMB0211	OPEN SPRING(R)	
42	RMB0214	OPEN SPRING(L)	
43	RMB0282	EJECT LEVER SPRING	
44	RMM0077-2	EJECT ROD(DECK1)	
45	RMM0078-2	EJECT ROD(DECK2)	
46	RMR0478A-W	P.C.B. SUPPORT	
47	RMR0478B-W	HEADPHONES JACK PUSH PLATE	
48	RMS0324	DAMPER GEAR	
49	RMA0503	EJECT HOLDER(L)	
50	RML0230	EJECT LEVER(L)	
51	RMS0242	EJECT SHAFT	
52	XUC2FT	E-RING	
53	RMA0504	EJECT HOLDER(R)	
54	RML0231	EJECT LEVER(R)	
55	SHR8005	LOCKING SUPPORT	
56	XTBS26+8J	SCREW	
57	XTB3+12JFZ	SCREW	
58	XTB3+6FFZ	SCREW	
59	XTW3+15T	SCREW	
60	REX0475	CONNECTOR ASS'Y(6P)	
61	REZ0548	FPC BOARD(23P)	
62	SNE2123	GND SCREW	(E, EG)
63	RGU0638-K	SET BUTTON	

■ RESISTORS AND CAPACITORS

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R3	ERDS2TJ562	1/4W 5.6K
R4	ERDS2TJ103	1/4W 10K
R5	ERDS2TJ6R8	1/4W 6.8
R6	ERDS2TJ561	1/4W 560
R7	ERDS2TJ471	1/4W 470
R8	ERDS2TJ102	1/4W 1K
R11	ERDS2TJ332	1/4W 3.3K
R12	ERDS2TJ471	1/4W 470
R13	ERDS2TJ824	1/4W 820K (E, GC, GN)
R13	ERDS2TJ474	1/4W 470K (EG)
R14, 15	ERDS2TJ331	1/4W 330
R16	ERDS2TJ474	1/4W 470K
R18, 19	ERDS2TJ102	1/4W 1K
R20	ERDS2TJ104	1/4W 100K
R21	ERDS2TJ122	1/4W 1.2K
R23	ERDS2TJ103	1/4W 10K
R27, 28	ERDS2TJ332	1/4W 3.3K
R29	ERDS2TJ560T	1/4W 56
R30	ERDS2TJ561	1/4W 560
R31	ERDS2TJ822	1/4W 8.2K
R36	ERDS2TJ103	1/4W 10K
R37	ERDS2TJ102	1/4W 1K
R38	ERDS2TJ821	1/4W 820
R39	ERDS2TJ103	1/4W 10K
R41, 42	ERDS2TJ562	1/4W 5.6K
R45, 46	ERDS2TJ274	1/4W 270K (E, GC, GN)
R45, 46	ERDS2TJ684	1/4W 680K (EG)
R47	ERDS2TJ332	1/4W 3.3K
R48-50	ERDS2TJ222	1/4W 2.2K
R51	ERDS2TJ102	1/4W 1K
R52-54	ERDS2TJ103	1/4W 10K
R56	ERDS2TJ103	1/4W 10K
R62	ERDS2TJ101	1/4W 100
R63	ERDS2TJ102	1/4W 1K
R64	ERDS1FJ330	1/2W 33 ⚠
R66	ERDS1FVJ4R7T	1/2W 4.7 ⚠
R69, 70	ERDS2TJ272T	1/4W 2.7K
R71, 72	ERDS2TJ182	1/4W 1.8K (E, GC, GN)
R71, 72	ERDS2TJ102	1/4W 1K (EG)
R81	ERDS2TJ103	1/4W 10K
R83	ERDS2TJ182	1/4W 1.8K
R84	ERDS2TJ223	1/4W 22K
R85	ERDS2TJ103	1/4W 10K
R86	ERDS2TJ102	1/4W 1K
R87, 88	ERDS2TJ122	1/4W 1.2K
R89	ERDS2TJ684	1/4W 680K
R90	ERDS2TJ102	1/4W 1K
R91	ERDS2TJ104	1/4W 100K
R92	ERDS2TJ152	1/4W 1.5K
R93	ERDS2TJ183T	1/4W 18K
R94	ERDS2TJ222	1/4W 2.2K
R95	ERDS2TJ103	1/4W 10K
R101	ERDS2TJ334	1/4W 330K
R102	ERDS2TJ104	1/4W 100K
R103, 104	ERDS2TJ123	1/4W 12K
R105	ERDS2TJ181T	1/4W 180
R106	ERDS2TJ222	1/4W 2.2K
R107, 108	ERDS2TJ330	1/4W 33
R109, 110	ERDS2TJ392T	1/4W 3.9K
R111, 112	ERDS2TJ222	1/4W 2.2K
R113, 114	ERDS2TJ122	1/4W 1.2K
R115, 116	ERDS2TJ225	1/4W 2.2M
R117, 118	ERDS2TJ105T	1/4W 1M
R119, 120	ERDS2TJ104	1/4W 100K
R121, 122	ERDS2TJ154	1/4W 150K
R123, 124	ERDS2TJ473	1/4W 47K
R125, 126	ERDS2TJ472	1/4W 4.7K
R127, 128	ERDS2TJ332	1/4W 3.3K
R129, 130	ERDS2TJ682T	1/4W 6.8K
R131	ERDS2TJ823T	1/4W 82K
R132	ERDS2TJ335T	1/4W 3.3M
R133	ERDS2TJ332	1/4W 3.3K
R134	ERDS2TJ474	1/4W 470K
R135, 136	ERDS2TJ272T	1/4W 2.7K
R137-139	ERDS2TJ103	1/4W 10K
R141, 142	ERDS2TJ682T	1/4W 6.8K
R143, 144	ERDS2TJ222	1/4W 2.2K
R145, 146	ERDS2TJ103	1/4W 10K
R151, 152	ERDS2TJ105T	1/4W 1M
R153, 154	ERDS2TJ102	1/4W 1K
R155, 156	ERDS2TJ471	1/4W 470
R158	ERDS2TJ101	1/4W 100
R159, 160	ERDS2TJ222	1/4W 2.2K
R161, 162	ERDS2TJ472	1/4W 4.7K
R163	ERDS2TJ433	1/4W 43K
R169, 170	ERDS2TJ102	1/4W 1K
R171	ERD2FCVG120T	1/4W 12 ⚠
R172	ERDS2TJ331	1/4W 330
R173	ERDS2TJ103	1/4W 10K
R174, 175	ERDS2TJ472	1/4W 4.7K
R176	ERDS2TJ822	1/4W 8.2K
R177	ERDS2TJ103	1/4W 10K
R178	ERDS2TJ1R2	1/4W 1.2
R179, 180	ERDS2TJ472	1/4W 4.7K
R181	ERDS2TJ332	1/4W 3.3K
R182	ERDS2TJ1R0	1/4W 1.0
R183-185	ERDS2TJ104	1/4W 100K
R186	ERDS2TJ102	1/4W 1K
R200	ERDS2TJ221	1/4W 220
R201	ERDS2TJ2R7T	1/4W 2.7
R202, 203	ERDS2TJ123	1/4W 12K
R204	ERDS2TJ182	1/4W 1.8K
R205	ERDS2TJ334	1/4W 330K
R206	ERDS2TJ221	1/4W 220
R207	ERDS2TJ2R7T	1/4W 2.7
R208	ERDS2TJ682T	1/4W 6.8K
R209	ERDS2TJ183T	1/4W 18K
R210	ERDS2TJ123	1/4W 12K
R211	ERDS2TJ334	1/4W 330K
R212	ERDS2TJ123	1/4W 12K
R213	ERDS2TJ152	1/4W 1.5K
R214, 215	ERDS2TJ472	1/4W 4.7K
R216-218	ERDS2TJ473	1/4W 47K
R219	ERDS2TJ103	1/4W 10K
R220	ERDS2TJ472	1/4W 4.7K
R221	ERDS2TJ2R7T	1/4W 2.7
R222	ERDS2TJ473	1/4W 47K
R223	ERDS2TJ472	1/4W 4.7K
R224	ERDS2TJ103	1/4W 10K
R225	ERDS2TJ2R7T	1/4W 2.7
R226, 227	ERDS2TJ102	1/4W 1K
R228	ERDS2TJ472	1/4W 4.7K
R229	ERDS2TJ103	1/4W 10K
R230, 231	ERDS2TJ472	1/4W 4.7K
R232	ERDS2TJ102	1/4W 1K
R233	ERDS2TJ222	1/4W 2.2K
R234	ERDS2TJ472	1/4W 4.7K
R235, 236	ERDS2TJ104	1/4W 100K
R237	ERDS2TJ100	1/4W 10
R239-242	ERDS2TJ272T	1/4W 2.7K
R271	ERDS2TJ473	1/4W 47K
R272	ERDS2TJ102	1/4W 1K
R301, 302	ERDS2TJ123	1/4W 12K
R303, 304	ERDS2TJ183T	1/4W 18K
R305, 306	ERDS2TJ561	1/4W 560
R307	ERDS2TJ474	1/4W 470K
R308	ERDS2TJ561	1/4W 560 (GC, GN)
R309-311	ERDS2TJ122	1/4W 1.2K
R312	ERDS2EJ121	1/4W 120
R313, 314	ERDS2TJ122	1/4W 1.2K
R315, 316	ERDS2TJ102	1/4W 1K
R317, 318	ERDS2TJ563	1/4W 56K
R319, 320	ERDS2TJ123	1/4W 12K
R321, 322	ERDS2TJ104	1/4W 100K

Ref. No.	Part No.	Values & Remarks
R323, 324	ERDS2TJ102	1/4W 1K
R325, 326	ERDS2TJ222	1/4W 2.2K
R327, 328	ERDS2TJ223	1/4W 22K
R329, 330	ERDS2TJ563	1/4W 56K
R331, 332	ERDS2TJ562	1/4W 5.6K
R333, 334	ERDS2TJ223	1/4W 22K
R335, 336	ERDS2TJ102	1/4W 1K
R337, 338	ERDS2TJ472	1/4W 4.7K
R339	ERDS2TJ681	1/4W 680
R341-344	ERDS2TJ103	1/4W 10K
R345, 346	ERDS2TJ273	1/4W 27K
R347	ERDS2TJ394	1/4W 390K
R348	ERDS2TJ393	1/4W 39K
R349	ERDS2TJ224T	1/4W 220K
R350	ERDS2TJ223	1/4W 22K
R353-355	ERDS2TJ223	1/4W 22K
R356	ERDS2TJ152	1/4W 1.5K
R357	ERDS2TJ103	1/4W 10K
R359	ERDS2TJ102	1/4W 1K
R361	ERDS2TJ105T	1/4W 1M
R362	ERDS2TJ104	1/4W 100K
R363	ERDS2TJ332	1/4W 3.3K
R364	ERDS2TJ273	1/4W 27K
R365, 366	ERDS2TJ223	1/4W 22K
R367, 368	ERDS2TJ153	1/4W 15K
R369, 370	ERDS2TJ223	1/4W 22K
R371, 372	ERDS2TJ102	1/4W 1K
R373-376	ERDS2TJ103	1/4W 10K
R379	ERDS2TJ103	1/4W 10K
R380	ERDS2TJ104	1/4W 100K
R381-383	ERDS2TJ103	1/4W 10K
R384	ERDS2TJ472	1/4W 4.7K
R385	ERDS2TJ473	1/4W 47K
R389	ERDS2TJ103	1/4W 10K
R390	ERDS2TJ272T	1/4W 2.7K
R391	ERDS2TJ332	1/4W 3.3K
R392-395	ERDS2TJ103	1/4W 10K
R396	ERDS2TJ122	1/4W 1.2K
R397, 398	ERDS2TJ102	1/4W 1K
R399	ERDS2TJ122	1/4W 1.2K
R401, 402	ERDS2TJ123	1/4W 12K
R403, 404	ERDS2TJ223	1/4W 22K
R405-408	ERDS2TJ822	1/4W 8.2K
R409-424	ERDS2TJ224T	1/4W 220K
R425, 426	ERDS2TJ102	1/4W 1K
R427, 428	ERDS2TJ823T	1/4W 82K
R429, 430	ERDS2TJ104	1/4W 100K
R451, 452	ERDS2TJ183T	1/4W 18K
R453, 454	ERDS2TJ102	1/4W 1K
R455, 456	ERDS2TJ222	1/4W 2.2K
R457, 458	ERDS2TJ821	1/4W 820
R459, 460	ERDS2TJ102	1/4W 1K
R462	ERDS2TJ472	1/4W 4.7K
R463-465	ERDS2TJ104	1/4W 100K
R466	ERG1SJ100E	1W 10
R467	ERDS2TJ681	1/4W 680
R501, 502	ERDS2TJ102	1/4W 1K
R503, 504	ERDS2TJ103	1/4W 10K
R505-508	ERDS2TJ104	1/4W 100K
R509	ERD25FJ470	1/4W 47 ⚠
R511	ERDS2TJ563	1/4W 56K
R512	ERDS2TJ103	1/4W 10K
R515, 516	ERDS1FVJ100T	1/2W 10 ⚠
R518	ERDS2TJ102	1/4W 1K
R519, 520	ERDS2TJ221	1/4W 220
R523	ERDS2TJ152	1/4W 1.5K
R523A	ERDS2TJ181T	1/4W 180
R524A	ERDS2TJ181T	1/4W 180
R524	ERQ12AJ560E	1/2W 56 ⚠
R525A	ERDS2TJ181T	1/4W 180
R525	ERQ12AJ2R2E	1/2W 2.2 ⚠
R526	ERDS2TJ151	1/4W 150
R526A	ERDS2TJ181T	1/4W 180
R527	ERDS1FVJ182T	1/2W 1.8K ⚠
R528	ERDS1FVJ390T	1/2W 39 ⚠
R529	ERDS2TJ151	1/4W 150
R530	ERDS2TJ122	1/4W 1.2K
R531	ERDS2TJ102	1/4W 1K
R532	ERDS2TJ823T	1/4W 82K
R533	ERDS2TJ563	1/4W 56K
R534	ERDS2TJ222	1/4W 2.2K
R535	ERD2FCVJ5R6T	1/4W 5.6 ⚠
R536, 537	ERDS2TJ562	1/4W 5.6K
R538	ERD2FCVJ8R2T	1/4W 8.2 ⚠
R539, 540	ERDS2TJ472	1/4W 4.7K
R541, 542	ERDS2TJ152	1/4W 1.5K
R543	ERD2FCVJ8R2T	1/4W 8.2 ⚠
R544	ERQ16NKWR15E	1/6W 0.15 ⚠
R545	ERDS2TJ822	1/4W 8.2K
R551	ERDS2TJ102	1/4W 1K
R552	ERDS2TJ123	1/4W 12K
R553	ERDS2TJ681	1/4W 680
R554	ERDS2TJ154	1/4W 150K
R555	ERDS2TJ101	1/4W 100
R556	ERDS2TJ103	1/4W 10K
R557	ERDS2TJ122	1/4W 1.2K
R558	ERDS2TJ1R0	1/4W 1.0
R559	ERQ16NKWR10E	1/6W 0.10 ⚠
R560	ERDS2TJ181T	1/4W 180
R561	ERG1SJ470E	1W 47
R562	ERQ12AJ470E	1/2W 47 ⚠
R563	ERDS1FVJ2R2T	1/2W 2.2 ⚠
R565, 566	ERDS2TJ100	1/4W 10 (E, EG, GN)
R600	ERDS2TJ5R6	1/4W 5.6 (GC)
R601, 602	ERDS2TJ104	1/4W 100K
R603	ERDS2TJ102	1/4W 1K
R604	ERDS2TJ1R5T	1/4W 1.5 (E, EG, GN)
R604	ERDS2TJ5R6	1/4W 5.6 (GC)
R605	ERDS2TJ105T	1/4W 1M
R606	ERDS2TJ102	1/4W 1K
R607	ERDS2TJ224T	1/4W 220K
R608-618	ERDS2TJ104	1/4W 100K
R619	ERDS2TJ103	1/4W 10K
R620, 621	ERDS2TJ101	1/4W 100
R622, 623	ERDS2TJ103	1/4W 10K
R624	ERDS2TJ105T	1/4W 1M
R625	ERDS2TJ102	1/4W 1K
R626	ERDS2TJ103	1/4W 10K
R627	ERDS2TJ224T	1/4W 220K
R628, 629	ERDS2TJ473	1/4W 47K
R630	ERDS2TJ104	1/4W 100K
R631	ERDS2TJ103	1/4W 10K
R632	ERDS2TJ682T	1/4W 6.8K
R633, 634	ERDS2TJ103	1/4W 10K
R635	ERDS2TJ225	1/4W 2.2M
R636-642	ERDS2TJ122	1/4W 1.2K
R643	ERDS2TJ104	1/4W 100K
R644	ERDS2TJ101	1/4W 100
R645	ERDS2TJ271	1/4W 270
R646	ERDS2TJ152	1/4W 1.5K
R647	ERDS2TJ101	1/4W 100
R648	ERDS2TJ822	1/4W 8.2K
R649	ERDS2TJ103	1/4W 10K
R650	ERDS2TJ222	1/4W 2.2K
R652	ERDS2TJ101	1/4W 100
R653	ERDS2TJ271	1/4W 270
R654, 655	ERDS2TJ103	1/4W 10K
R656	ERDS2TJ822	1/4W 8.2K
R657, 658	ERDS2TJ103	1/4W 10K
R659	ERDS2TJ822	1/4W 8.2K
R660-664	ERDS2TJ102	1/4W 1K
R665	ERDS2TJ222	1/4W 2.2K
R801, 802	ERDS2TJ472	1/4W 4.7K
R803, 804	ERDS2TJ392T	1/4W 3.9K
R805, 806	ERDS2TJ103	1/4W 10K
R807, 808	ERDS2TJ153	1/4W 15K
R809, 810	ERDS2TJ224T	1/4W 220K
R815, 816	ERDS2TJ202T	1/4W 2K
R817, 818	ERDS2TJ683	1/4W 68K
R819, 820	ERDS2TJ682T	1/4W 6.8K
R821	ERDS2TJ105T	1/4W 1M
R823	ERDS2TJ474	1/4W 470K
R824	ERDS2TJ102	1/4W 1K
R825, 826	ERDS2TJ472	1/4W 4.7K
R827, 828	ERDS2TJ152	1/4W 1.5K
R829, 830	ERDS2TJ473	1/4W 47K

Ref. No.	Part No.	Values & Remarks
R831, 832	ERDS2TJ102	1/4W 1K
R833	ERDS2TJ105T	1/4W 1M
R834	ERDS2TJ334	1/4W 330K
R835, 836	ERDS2TJ222	1/4W 2.2K
R837	ERDS2TJ105T	1/4W 1M
R838	ERDS2TJ334	1/4W 330K
R839	ERDS2TJ152	1/4W 1.5K
R840	ERDS2TJ472	1/4W 4.7K
R841	ERDS2TJ103	1/4W 10K
R842	ERDS2TJ473	1/4W 47K
R871-874	ERDS2TJ331	1/4W 330 (E, EG)
R875, 876	ERDS2TJ473	1/4W 47K (E, EG)
R877, 878	ERDS2TJ271	1/4W 270 (E, EG)
R879, 880	ERDS2TJ680T	1/4W 68 (E, EG)
R881, 882	ERDS2TJ184T	1/4W 180K (E, EG)
R883, 884	ERDS2TJ123	1/4W 12K (E, EG)
R885, 886	ERDS2TJ224T	1/4W 220K (E, EG)
R901	ERDS2TJ102	1/4W 1K
R902	ERDS2TJ222	1/4W 2.2K
R903	ERDS2TJ182	1/4W 1.8K
R904	ERDS2TJ222	1/4W 2.2K
R905, 906	ERDS2TJ102	1/4W 1K
R907	ERDS2TJ122	1/4W 1.2K
R908	ERDS2TJ182	1/4W 1.8K
R909	ERDS2TJ222	1/4W 2.2K
R910	ERDS2TJ272T	1/4W 2.7K
R911	ERDS2TJ472	1/4W 4.7K
R912	ERDS2TJ682T	1/4W 6.8K
R913	ERDS2TJ103	1/4W 10K
R914	ERDS2TJ223	1/4W 22K
R915	ERDS2TJ683	1/4W 68K
R916	ERDS2TJ183T	1/4W 18K
R917	ERDS2TJ682T	1/4W 6.8K
R918	ERDS2TJ562	1/4W 5.6K
R919	ERDS2TJ332	1/4W 3.3K
R920	ERDS2TJ272T	1/4W 2.7K
R921	ERDS2TJ222	1/4W 2.2K
R922	ERDS2TJ182	1/4W 1.8K
R923	ERDS2TJ122	1/4W 1.2K
R924	ERDS2TJ152	1/4W 1.5K
R925, 926	ERDS2TJ102	1/4W 1K
R927	ERDS2TJ122	1/4W 1.2K
R928	ERDS2TJ182	1/4W 1.8K
R929	ERDS2TJ222	1/4W 2.2K
R930	ERDS2TJ272T	1/4W 2.7K
R931	ERDS2TJ472	1/4W 4.7K
R932	ERDS2TJ682T	1/4W 6.8K
R933	ERDS2TJ103	1/4W 10K
R934	ERDS2TJ223	1/4W 22K
R935	ERDS2TJ683	1/4W 68K
R936, 937	ERDS2TJ102	1/4W 1K
R938	ERDS2TJ122	1/4W 1.2K

Ref. No.	Part No.	Values & Remarks
R939	ERDS2TJ182	1/4W 1.8K
R940, 941	ERDS2TJ222	1/4W 2.2K
R942	ERDS2TJ102	1/4W 1K
R945, 946	ERDS2TJ102	1/4W 1K
R951	ERDS2TJ103	1/4W 10K
R952, 953	ERDS2TJ104	1/4W 100K
R954	ERDS2TJ823T	1/4W 82K
R955	ERDS2TJ102	1/4W 1K
R956	ERDS2TJ331	1/4W 330
R958	ERDS2TJ224T	1/4W 220K
R959	ERDS2TJ473	1/4W 47K
R960	ERDS2TJ102	1/4W 1K
R961, 962	ERDS2TJ104	1/4W 100K
R963, 964	ERDS2TJ474	1/4W 470K
R965	ERDS2TJ473	1/4W 47K
R966, 967	ERDS2TJ472	1/4W 4.7K
R968	ERDS2TJ473	1/4W 47K
R970	ERDS2TJ472	1/4W 4.7K
R971	ERDS2TJ104	1/4W 100K
R972	ERDS2TJ103	1/4W 10K
R973	ERDS2TJ224T	1/4W 220K
R974	ERDS2TJ103	1/4W 10K
R975	ERDS2TJ102	1/4W 1K (GC, GN)
R977	ERDS2TJ102	1/4W 1K
R981-984	ERDS2TJ102	1/4W 1K
R985-988	ERDS2TJ103	1/4W 10K
R989-995	ERDS2TJ104	1/4W 100K
R996	ERDS2TJ561	1/4W 560
R997, 998	ERDS2TJ104	1/4W 100K
		CAPACITORS
C2	ECBT1E103ZF	25V 0.01U
C3	ECEA1VKA330B	35V 33U
C4	ECEA1EKA4R7B	25V 4.7U
C5	ECA1CM471B	16V 470U
C6	ECBT1E103ZF	25V 0.01U
C7	ECBT1H102KB5	50V 1000P
C8	ECBT1H102KB5	50V 1000P
C9	ECQV1H473JM3	50V 0.047U
C10	ECBT1H8R2KC5	50V 8.2P
C11	ECBT1H180JC5	50V 18P
C12	ECEA1CKA100B	16V 10U
C13	ECBT1H104ZF5	50V 0.1U
C14	ECBT1E223ZF	25V 0.022U
C15	ECEA0JKA101B	6.3V 100U
C16	ECEA1HKA3R3B	50V 3.3U
C17-19	ECBT1C103KS5	16V 0.01U
C20	ECBT1H150JC5	50V 15P
C21	ECCR1H680JS5	50V 68P
C22	ECBT1E223ZF	25V 0.022U
C23	ECBT1H101KB5	50V 100P

Ref. No.	Part No.	Values & Remarks
C24	ECEA1CKA100B	16V 10U
C25	ECBT1E103ZF	25V 0.01U
C26	ECEA1HKA3R3B	50V 3.3U
C27, 28	ECBT1H150JC5	50V 15P
C29	ECBT1H102KB5	50V 1000P
C30	ECEA1AKA101B	10V 100U
C34	ECEA1CKA100B	16V 10U
C35	ECEA1AKA470B	10V 47U
C36	ECQG1H102KZT	50V 1000P
C37	ECEA1HKAR47B	50V 0.47U
C38	ECEA1HKAR33B	50V 0.33U
C39	ECBT1C103KS5	16V 0.01U
C40	ECEA1HKA010B	50V 1U
C41, 42	ECFR1E123KR	25V 0.012U
C43, 44	ECEA1CKA100B	16V 10U
C45	ECBT1H102KB5	50V 1000P
C50, 51	ECBT1H102KB5	50V 1000P
C53	ECBT1H102KB5	50V 1000P
C56	ECBT1C103KS5	16V 0.01U
C57	ECEA1AKA101B	10V 100U
C58	ECBT1H102KB5	50V 1000P
C61	ECEA1CKA220B	16V 22U
C81	ECBT1H101KB5	50V 100P
C83	ECBT1C103KS5	16V 0.01U
C90	ECBT1H3R3KC5	50V 3.3P
C91	ECCR1H820JS5	50V 82P
C92	ECBT1H471KB5	50V 470P
C93, 94	ECFR1E392KR	25V 3900P
C101, 102	ECBT1H102KB5	50V 1000P
C103	ECBA1H681KB5	50V 680P
C104	ECFR1C223MR	16V 0.022U
C105-107	ECBA1H681KB5	50V 680P
C108	ECEA1AKA330B	10V 33U
C109	ECEA1AKA101B	10V 100U
C111, 112	ECBA1H681KB5	50V 680P
C113, 114	ECEA0JKA221B	6.3V 220U
C115, 116	ECFR1C333JR	16V 0.033U
C117, 118	ECEA1HKA010B	50V 1U
C119, 120	ECEA1EKA4R7B	25V 4.7U
C121, 122	ECEA1HKA010B	50V 1U
C123, 124	ECBT1H102KB5	50V 1000P
C125, 126	ECFR1E104KR	25V 0.1U
C127, 128	ECBT1C332KB5	16V 3300P
C129, 130	ECBT1H151KB5	50V 150P
C131, 132	ECBT1H221KB5	50V 220P
C133, 134	ECEA1EKA4R7B	25V 4.7U
C135, 136	ECBT1H102KB5	50V 1000P
C137, 138	ECFR1C183KR	16V 0.018U
C139	ECEA1HKA2R2B	50V 2.2U
C140	ECEA1CKA100B	16V 10U
C141	ECEA1HKA0R1B	50V 0.1U
C142	ECFR1C223MR	16V 0.022U

Ref. No.	Part No.	Values & Remarks
C143, 144	ECEA1HKA010B	50V 1U
C145, 146	ECEA1CKA100B	16V 10U
C150	ECEA0JKA470B	6.3V 47U
C151, 152	ECEA1HKA010B	50V 1U
C153, 154	ECBT1H331KB5	50V 330P
C155, 156	ECEA1CKA100B	16V 10U
C157, 158	ECBA1H681KB5	50V 680P
C159, 160	ECBT1C682KR5	16V 6800P
C161	ECEA1CKA101B	16V 100U
C162	ECA0JM471B	6.3V 470U
C163, 164	ECEA50M1RB	50V 1U
C165, 166	ECEA1CKA100B	16V 10U
C167, 168	ECEA50ZR68	50V 0.68U
C169, 170	ECEA1EKA4R7B	25V 4.7U
C171	ECEA0JKA470B	6.3V 47U
C173	ECBT1C103MS5	16V 0.01U
C174	ECEA1HKA010B	50V 1U
C175	ECEA1CKA101B	16V 100U
C176	ECQV1H473JM3	50V 0.047U
C177, 178	ECBT1H102KB5	50V 1000P
C179, 180	ECFR1C103KR	16V 0.01U
C181	ECBT1C103MS5	16V 0.01U
C182	ECEA0JKA470B	6.3V 47U
C183	ECQV1H474JM3	50V 0.47U
C184	ECQP2A152JZT	100V 1500P
C185	ECQP2E472JZT	250V 4700P
C186	ECEA0JKA470B	6.3V 47U
C187, 188	ECBT1H101KB5	50V 100P
C189	ECQP2A222JZT	100V 2200P
C190	ECBT1C103MS5	16V 0.01U
C201	ECEA1CKA101B	16V 100U
C202	ECBT1H104ZF5	50V 0.1U
C271	ECBT1H102KB5	50V 1000P
C300	ECBT1H104ZF5	50V 0.1U
C301	ECBT1H102KB5	50V 1000P
C302, 303	ECBT1H104ZF5	50V 0.1U
C304	ECBT1E103ZF	25V 0.01U
C305-308	ECEA1HKA3R3B	50V 3.3U
C309, 310	ECBT1E103ZF	25V 0.01U
C311	ECFR1C123MR	16V 0.012U
C312	ECFR1C683KR	16V 0.068U
C313	ECFR1C823MR	16V 0.082U
C314	ECEA1HKA3R3B	50V 3.3U
C315, 316	ECBT1H3R3KC5	50V 3.3P
C319, 320	ECBT1E103ZF	25V 0.01U
C321	ECBT1C103KS5	16V 0.01U
C322	ECBT1H102KB5	50V 1000P
C323	ECBT1H330J5	50V 33P
C324	ECBT1H102KB5	50V 1000P
C325	ECA1AM471B	10V 470U (E, EG)
C325	ECEA1AU471	10V 470U (GC, GN)
C326	ECBT1C103KS5	16V 0.01U

Ref. No.	Part No.	Values & Remarks
C327, 328	ECBT1H102KB5	50V 1000P
C329	ECEA1HKA010B	50V 1U
C330	ECBT1E103ZF	25V 0.01U
C331, 332	ECEA1HKA3R3B	50V 3.3U
C334, 335	ECBT1C472KR5	16V 4700P
C337	ECBT1H104ZF5	50V 0.1U
C338	ECBT1H102KB5	50V 1000P
C339	ECBT1C103KS5	16V 0.01U
C340	ECEA1CKA100B	16V 10U
C341, 342	ECEA1HKA010B	50V 1U
C343	ECEA1EKA100B	25V 10U
C344	ECBT1H561KB5	50V 560P
C345	ECBT1H101KB5	50V 100P
C403, 404	ECBT1H391KB5	50V 390P
C405-408	ECEA1HKA3R3B	50V 3.3U
C409, 410	ECEA1CKA220B	16V 22U
C411-416	ECBT1E103ZF	25V 0.01U
C417, 418	ECEA1CKA220B	16V 22U
C419, 420	ECEA1HKA2R2B	50V 2.2U
C421, 422	ECEA1HKAR22B	50V 0.22U
C423, 424	ECEA1HKAR33B	50V 0.33U
C425, 426	ECEA1HKA0R1B	50V 0.1U
C427, 428	ECEA1HKAR15B	50V 0.15U
C429, 430	ECFR1C333KR	16V 0.033U
C431, 432	ECQV1H683JM3	50V 0.068U
C433, 434	ECFR1C153KR	16V 0.015U
C435, 436	ECFR1C273JR	16V 0.027U
C437, 438	ECBT1C562KR5	16V 5600P
C439, 440	ECBT1C103KS5	16V 0.01U
C441, 442	ECBT1C222KR5	16V 2200P
C443, 444	ECBT1C472KR5	16V 4700P
C445, 446	ECBT1C122KR5	16V 1200P
C449	ECBT1E103ZF	25V 0.01U
C450	ECEA1AKA470B	10V 47U
C451, 452	ECBT1C103KS5	16V 0.01U
C453	ECBT1E103ZF	25V 0.01U
C454	ECEA1AKA101B	10V 100U
C503, 504	ECBT1H331KB5	50V 330P
C505, 506	ECBT1H821KB5	50V 820P
C507, 508	ECBT1H150J5	50V 15P
C509	ECEA0JKA470B	6.3V 47U
C510	ECEA1CKA100B	16V 10U
C511, 512	ECKT1H223ZF	50V 0.022U
C513, 514	ECEA1HKAR68B	50V 0.68U
C515	ECBT1E223ZF	25V 0.022U
C520-523	ECEA1CKA101B	16V 100U
C524, 525	ECEA1EKA4R7B	25V 4.7U
C528	ECEA1CKA101B	16V 100U
C529	ECKR1H103ZF5	50V 0.01U
C530	ECEA1VU222	35V 2200U (E, EG, GN) ⚠
C530	ECA1VM332B	35V 3300U (GC) ⚠

Ref. No.	Part No.	Values & Remarks
C531-534	ECKR1H103ZF5	50V 0.01U
C535	ECEA1CKA101B	16V 100U
C536	ECBT1E103ZF	25V 0.01U
C537	ECEA1CKA101B	16V 100U
C538, 539	ECKR1H103ZF5	50V 0.01U
C540	ECEA1HKA2R2B	50V 2.2U ⚠
C541, 542	ECEA1HU222B	50V 2200U (E, EG, GN) ⚠
C541, 542	ECA1HM332B	50V 3300U (GC) ⚠
C543	ECQE2104KF3	250V 0.1U
C544	ECA1HM470B	50V 47U
C545	ECKR1H103ZF5	50V 0.01U
C546	ECA1HM101B	50V 100U ⚠
C547	ECEA1HKA220B	50V 22U
C548	ECBT1E103ZF	25V 0.01U
C549	ECA1HM101B	50V 100U ⚠
C551, 552	ECBT1E103ZF	25V 0.01U
C553	ECEA1HKA3R3B	50V 3.3U
C554, 555	ECBT1H101KB5	50V 100P
C556	ECEA1HKA3R3B	50V 3.3U (E, EG, GN)
C556	ECEA1CKA220B	16V 22U (GC)
C557	ECEA1HKA2R2B	50V 2.2U (E, EG, GN)
C557	ECEA1CKA220B	16V 22U (GC)
C558	ECEA1HKA010B	50V 1U
C563, 564	ECBT1E103ZF	25V 0.01U (E, EG, GN)
C565-567	ECBT1H102KB5	50V 1000P (E, EG, GN)
C601	ECEA1AKA220B	10V 22U
C602	ECBT1E223ZF	25V 0.022U
C604	ECBT1E223ZF	25V 0.022U
C605, 606	ECEA1HKA3R3B	50V 3.3U ⚠
C607	ECEA1HKA010B	50V 1U
C608	ECEA1HKA3R3B	50V 3.3U ⚠
C611	ECBT1E103ZF	25V 0.01U
C612	ECEA1AKA220B	10V 22U
C613	ECBT1E103ZF	25V 0.01U
C614	ECA0JM471B	6.3V 470U
C615	ECBT1E103ZF	25V 0.01U
C616	ECEA1HKA3R3B	50V 3.3U
C617-620	ECEA1HKA010B	50V 1U
C621, 622	ECFR1C683KR	16V 0.068U
C623, 624	ECBT1E103ZF	25V 0.01U
C625	ECEA1AKA330B	10V 33U
C626	ECBT1H102KB5	50V 1000P
C627	ECEA1HKA010B	50V 1U
C629	ECEA1AKA330B	10V 33U
C630	ECBT1H102KB5	50V 1000P
C631	ECEA1CKA100B	16V 10U
C632	ECBT1H102KB5	50V 1000P
C633	ECBT1H101KB5	50V 100P
C635	ECEA1HKA010B	50V 1U
C790	ECA1AKF820E	10V 82U
C801, 802	ECEA1HKA3R3B	50V 3.3U

Ref. No.	Part No.	Values & Remarks
C803	ECBT1E103ZF	25V 0.01U
C804	ECEA1CKA220B	16V 22U
C805	ECEA1CKA100B	16V 10U
C806	ECA1CM221B	16V 220U
C809,810	ECBT1H3R3KC5	50V 3.3P
C811, 812	ECEA1HKA3R3B	50V 3.3U
C813, 814	ECBT1E103ZF	25V 0.01U
C815, 816	ECEA1HKAR33B	50V 0.33U
C817, 818	ECEA1HKAR22B	50V 0.22U
C819	ECEA0JKA101B	6.3V 100U
C820	ECEA1HKA010B	50V 1U
C821, 822	ECFR1E563KR	25V 0.056U
C823, 824	ECEA1HKAR68B	50V 0.68U
C825, 826	ECBT1H101KB5	50V 100P
C851, 852	ECEA1HKAR33B	50V 0.33U
C861	ECA1EM471B	25V 470U
C871-874	ECBT1H101KB5	50V 100P (E, EG)
C875, 876	ECBT1H221KB5	50V 220P (E, EG)
C877, 878	ECEA1AKA330B	10V 33U (E, EG)
C879, 880	ECBT1H102KB5	50V 1000P (E, EG)
C881, 882	ECFR1E223KR	25V 0.022U (E, EG)
C883, 884	ECFR1E682KR	25V 6800P (E, EG)
C885, 886	ECEA1HKA3R3B	50V 3.3U (E, EG)
C887, 888	ECBT1H104ZF5	50V 0.1U (E, EG)
C891, 892	ECBT1H101KB5	50V 100P (E, EG)
C901-905	ECBT1H561KB5	50V 560P
C951-953	ECBT1H561KB5	50V 560P
C954	ECBT1H102KB5	50V 1000P
C955	ECA0JM102B	6.3V 1000U
C956	EECF5R5U473	5.5V 0.047F
C957	ECA0JKF470B	6.3V 47U
C959	ECBT1H150JC5	50V 15P
C960	ECBT1H220JC5	50V 22P
C961	ECEA1HKA010B	50V 1U
C962	ECBT1C103MS5	16V 0.01U
C963	ECEA1AKA330B	10V 33U
C964, 965	ECBT1H102KB5	50V 1000P
C966	ECBT1C103MS5	16V 0.01U
C967	ECEA1AKA220B	10V 22U
C968	ECEA1HKA010B	50V 1U
		<SERVO P.C.B.>
		RESISTORS
R701	ERJ6GEYJ100	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ823	1/10W 82K
R704	ERJ6GEYJ102A	1/10W 1K
R705	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ102A	1/10W 1K
R707	ERJ6GEYJ473V	1/10W 47K
R708	ERJ6GEYJ224V	1/10W 220K

Ref. No.	Part No.	Values & Remarks
R709	ERJ6GEYJ683V	1/10W 68K
R711	ERJ6GEYJ154V	1/10W 150K
R712	ERJ6GEYJ471V	1/10W 470
R714	ERJ6GEY0R00A	1/10W 0.00
R717-720	ERJ6GEYJ102A	1/10W 1K
R721	ERJ8GEYJ101V	1/8W 100
R722	ERJ6GEYJ473V	1/10W 47K
R723	ERJ6GEYJ182V	1/10W 1.8K
R724	ERJ6GEYJ333V	1/10W 33K
R725	ERJ6GEYJ472V	1/10W 4.7K
R726	ERJ6GEYJ473V	1/10W 47K
R727	ERJ6GEYJ103V	1/10W 10K
R728	ERJ6GEYJ392V	1/10W 3.9K
R730	ERJ6GEYJ331V	1/10W 330
R731	ERJ6GEYJ392V	1/10W 3.9K
R734-736	ERJ6GEYJ101V	1/10W 100
R738	ERJ6GEYJ223V	1/10W 22K
R739	ERJ6GEYJ681V	1/10W 680
R741-743	ERJ6GEYJ562V	1/10W 5.6K
R744	ERJ6GEYJ103V	1/10W 10K
R745	ERJ6GEYJ155V	1/10W 1.5M
R746	ERJ8GEYJ103V	1/8W 10K
R747	ERJ6GEYJ473V	1/10W 47K
		CHIP JUMPERS
RJ701-717	ERJ8GEY0R00A	CHIP JUMPER
RJ721, 722	ERJ6GEY0R00A	CHIP JUMPER
RJ724-726	ERJ6GEY0R00A	CHIP JUMPER
		CAPACITORS
C701	ECEA0JKA220	6.3V 22U
C702	ECEA1HKA010I	50V 1U
C703	ECEA0JKA101I	6.3V 100U
C704	ECUZ1E104MBN	25V 0.1U
C705	ECEA1HKA010I	50V 1U
C706	ECUE1H101JCN	50V 100P
C708	ECUE1H472KBN	50V 4700P
C709	ECUE1C473KBN	16V 0.047U
C710	ECUE1H152KBN	50V 1500P
C711, 712	ECUZ1E104MBN	25V 0.1U
C713	ECUV1C104MBM	16V 0.1U
C714	ECEA0JKA101I	6.3V 100U
C715	ECEA0JKA470I	6.3V 47U
C716	ECUE1H561KBN	50V 560P
C717	ECUZ1E104MBN	25V 0.1U
C718, 719	ECUV1C224KBM	16V 0.22U
C721, 722	ECUE1H100DCN	50V 10P
C723	ECEA1AKA221I	10V 220U
C724	ECUV1C104MBM	16V 0.1U
C725, 726	ECUE1H102KBN	16V 1000P

Ref. No.	Part No.	Values & Remarks
C727, 728	ECEA1HPK010I	50V 1U
C730	ECUZ1E104MBN	25V 0.1U
C731, 732	ECA0JSD151I	6.3V 150U
C733	ECUZ1E104MBN	25V 0.1U
C734	ECEA1AKA221I	10V 220U
C735-737	ECUZNE104MBN	25V 0.1U
C738	ECUV1C154KBN	16V 0.15U
C742	ECUV1E273KBN	25V 0.027U
C743	ECUZNE104MBN	25V 0.1U
C744	ECUE1E822KBN	25V 8200P
C745	ECUE1C473MBN	16V 0.047U
C746	ECUE1H050DCN	50V 5P
C747	ECUE1H222KBN	50V 2200P
C748	ECUV1H271KBM	50V 270P

Printed in Japan
H930214000 H.H./T.N.